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# The Internal AUDITOR

JOURNAL OF THE INSTITUTE OF INTERNAL AUDITORS

WINTER 1960

THE INTERNAL AUDITOR'S APPRAISAL OF COMPANY OBJECTIVES AND PLANS
R. E. SEILER

A NEW ENVIRONMENT FOR THE AUDITOR
C. H. SCHOENFELD

PRACTICAL ASPECTS OF AN OPERATIONAL AUDIT
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INVENTORY INVESTMENTS – SOME NOTES ON PLANNING AND CONTROL
H. J. HINTZE

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# WINTER 1960

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MAY 21, 22, 23, 24

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OCTOBER 25, 26, 27

# The Internal Auditor

JOURNAL OF
THE INSTITUTE OF INTERNAL AUDITORS

Vol. 17 WINTER 1960 No. 4

## THE PRESIDENT'S PAGE

THIS season of the year most of us take time from our busy schedules to reflect on the good things in life—the human values—the moral rights and wrongs.

We have read much this year on corporate morality, including conflicts of interest in top management circles. Because of these disclosures, many of the larger corporations are taking a good hard look at their policies and controls. Stockholders have been asking pointed questions, and corporate management has become even more aware of the need to separate personal transactions from company business.

Internal auditors have been called upon by their managements to put special emphasis on reviews of areas such as Purchasing and Traffic which are susceptible to conflict of interest. Fortunately your Research Committee has published two fine reports on Purchasing and Traffic (Research Reports Nos. 2 and 6) which will be most helpful in developing audit programs for these activities.

The internal auditor, as a specialist in appraising controls, is the logical person for management to turn to for the answer to the question, "How can we prevent this from happening in our Company?" Internal auditors should be ready for this—perhaps guided in their thinking by the following quote—

> "No man has the right to do anything, the doing of which by all would defeat the purpose for which the organization stands."
>
> (Stanley L. Krebs.)

* * *

My best wishes for a very happy holiday season and successful New Year.

C. H. NAGLE

# AUTHORS AND ARTICLES

## EVALUATION OF EXECUTIVE CONTROLS

The scope of internal auditing is moving away from the narrow area of internal check to include evaluation of company objectives and plans. In this article, which is more a presentation of future aims than of currently accepted practice, the author discusses the distinctions between internal check, internal control and executive control and the internal auditor's relationship to them. As an aid to the auditor he presents proposed questions for use in an audit of company objectives and plans.

Robert E. Seiler is Associate Professor of Accounting at the University of Texas, where he also teaches a course in internal auditing. He is a CPA in Texas and has had practical experience in public accounting and as chief cost accountant, Southwestern Division of Tennex Furnace Company. Dr. Seiler has had many articles published and was the Thurston Award winner for 1959. He is a member of the American Institute of CPA's, the American Accounting Association and THE INSTITUTE OF INTERNAL AUDITORS.

## EVOLUTION IN RECORD-KEEPING METHODS

The impact of new machines is being felt to greater or lesser extent in all companies. After a discussion of the historical evolution from the earliest punch card machines to the electronic computers now available, the author discusses new capacities and characteristics, control concepts, the effect on the internal auditor and on personnel and the shifts of responsibility occasioned by these machines.

Carl H. Schoenfeld is Assistant to the Director of Finance, Boeing Airplane Co., Aero-Space Division. He has held various accounting positions at Boeing and been an internal auditor there before his present position. Mr. Schoenfeld is a graduate of the University of Washington and a CPA in that state. He is a member of the State Society of CPAs and a past president of the Puget Sound Chapter of THE INSTITUTE OF INTERNAL AUDITORS.

## OPERATIONAL AUDITING

Operational auditing is a subject of steadily increasing importance and interest. This article discusses the conduct of operational audits at Lockheed Aircraft Corporation, where such audits are performed on both organizational and functional lines. The detailed description of operational auditing of an organization is presented through examination of the steps followed: planning, preliminary survey, programing, field work, and reporting. The broadened scope of internal auditing has increased the responsibilities of the internal auditor. Following the five steps detailed in this article may aid in the discharge of these responsibilities.

R. W. Osborne is a Supervising Auditor in the Internal Audit Department of Lockheed Aircraft Corporation, California Division, with which he has been associated for several years. Mr. Osborne majored in Business Administration at the University of California at Los Angeles. He is a past treasurer and governor of the Los Angeles Chapter of THE INSTITUTE OF INTERNAL AUDITORS and is the General Chairman for the 10th Western Regional Conference, to be held in Los Angeles August 30—September 1, 1961.

## INVENTORY INVESTMENTS

Reduction of inventories is one way for concerns to free capital to finance desired investments. Excessive inventories not only tie up capital but incur needless expense. This article was begun as a research project of the Scandinavian Chapter then turned over completely to H. J. Hintze, who studied all available literature in the field, both Anglo-Saxon and Scandinavian, before preparing the report. Detailed discussion of planning of inventory investments is followed by discussion of the connection between inventory planning and other company activities and the control of inventory investments. Also included is a bibliography.

H. J. Hintze is now Audit Manager for France of Unilever Ltd. Until recently he had been Audit Manager for Scandinavia, and before that was with Price Waterhouse & Co., Continental Firm. Mr. Hintze studied law and economics in Geneve, Paris and Germany. He was a founder and first president of the Scandinavian Chapter of THE INSTITUTE OF INTERNAL AUDITORS and is currently a director at large and a member of the Institute Research Committee.

## FRAUD IN BUSINESS AND ITS CONTROL

The substance of the article on Fraud in Business and Its Control, which appeared in the Fall issue of THE INTERNAL AUDITOR, is given in two booklets which were issued by The Surety Association of America. These booklets are "Safeguards against Employee Dishonesty in Business" and "Fidelity Bonds." Readers who would like these booklets may secure them gratis by writing The Surety Association of America, 60 John Street, New York 36, New York.

# THE INTERNAL AUDITOR'S APPRAISAL OF COMPANY OBJECTIVES AND PLANS

By ROBERT E. SEILER

University of Texas

EVALUATIONS of company objectives and company plans are basic to a complete review of any company's control system. The internal auditing profession has evidenced an increasing awareness of this fact, and consequently the literature of the profession has recently shown a marked trend away from the narrow areas of internal check. Increased attention is being focused on controls variously described as management controls, executive controls, or administrative controls. The evaluation of company objectives and plans, two basic and most important executive controls, is emphasized in this paper. In addition some specific questions which the internal auditor should answer when evaluating these two control measures are presented.

## THE FUNCTION OF EXECUTIVE CONTROLS IN THE OVER-ALL CONTROL FRAMEWORK

Internal check, internal control, and executive control represent three different levels of control. While a division of these three types of control is difficult to draw and would not be of immediate concern in an actual audit assignment, the need for an adequate internal audit evaluation of executive controls becomes more obvious with a clear distinction between the three.

*Internal check.* Internal check is that part of the systems and procedures which is provided to prevent or detect errors and fraud: (a) by so subdividing or allocating work that no one person has sole control over any transaction, asset, or the records established to account therefor; (b) by so establishing the flow of work that one employee, acting independently, automatically verifies the work of another and carries the work forward to a logical conclusion without duplicating unnecessarily any work already performed; and (c) by providing physical and mechanical facilities of such a character and nature that the accuracy of the work performed by employees is increased greatly. The primary objective of this form of control is to assure that all assets are safeguarded and all transactions reflected fully and accurately in the accounting or other records of the company.

*Internal control.* Internal control is much broader than internal check. The definition of internal control as published by the American Institute of CPA's states that "Internal control . . . comprises the plan or organization and all of the coordinate methods and measures adopted within a business to safeguard its assets, check the accuracy and reliability of its accounting data, promote operational efficiency, and encourage adherence to prescribed managerial policies." Internal check is thus one of the parts of internal control. Other phases of internal control include internal auditing, as an evaluation device, forms and reports, as means of communication, and operating controls, such as budgets, standard costs and variances, and quality controls.

*Executive controls.* Executive controls in turn are broader than internal controls. Executive controls may be defined as the combination of objectives, plans, procedures, methods, and other measures by which top management keeps itself informed of the state of the business, coordinates all the functions of the business, maintains efficient performance, ascertains whether the business is being operated in conformance with established goals, and assures itself that the company's objectives are being met. Thus all internal controls are part of executive controls, but other controls such as the establishment of company objectives and the formalizing of company plans are also forms of executive control which need separate evaluation.

Management's basic stewardship responsibility to the stockholders can be upheld only by a creation of sound company plans and objectives and a successful transition from creation to achievement. Executive controls are the forces which are employed to guide the business through the operational phases from the initial creative stage of a project to the final completion stage.

## THE BASIC ELEMENTS OF CONTROL

Five basic elements are inherent in all control measures, and are found in internal checks, internal controls, and executive controls. These are (1) objectives or goals to be accomplished, (2) plans and policies which outline the how, when, and by whom these objectives are to be attained, (3) techniques and procedures by which the plans and policies are to be carried out, (4) standards or measuring devices to measure the results achieved in carrying out the predetermined plans and policies, and (5) a method of appraisal and evaluation of results. These basic elements are not always readily discernible. However, for a proper evaluation of the over-all control system these elements should be segregated and separately evaluated.

These five basic elements as related to executive controls exist in one form or another in the organization of most companies. The elements may be described differently, or may be concentrated in different units of the organization, but they must exist if management is to have a foundation for controlling business operations. Plans and policies may be assigned to the board of directors or the chief executive officers, or even to a special planning section. Standards of performance and measuring devices may be assigned to a combined engineering-accounting section. The establishment of specific techniques and procedures may be assigned to a special systems and procedures section. However, one thing is clear—the appraisal and evaluation procedures are most logically delegated to the internal auditing sections.

## RELATIONSHIP OF INTERNAL AUDITING TO EXECUTIVE CONTROLS

The Institute of Internal Auditors' "Statement of the Responsibilities of the Internal Auditor" states that, "Internal auditing is an independent appraisal activity . . . for the review of accounting, financial, and other operations as a basis for service to management." Perhaps the most significant words in this definition lie in the phrase *appraisal activity*. There is general agreement that the internal audit function includes an appraisal of internal check; at the present time there is general acceptance of the internal auditor's evaluation of all forms of internal control, including a review of operations, a review of the nature, content, and adequacy of reports and other communications, a review of the nature and techniques employed in setting standards, and a review of the adequacy and effectiveness of quality controls. If the appraisal function is to be complete, however, the internal audit function must appraise *all controls*, including executive controls. Thus a review and appraisal of company objectives and over-all planning should be an integral part of the internal audit appraisal activity. The functions of internal auditing, carried to a logical conclusion, must of necessity include an appraisal and review of executive controls, since they are the foundation upon which the other forms of control rest.

Much of the basic difficulty in evaluating the system of control lies in the failure to understand the several different forms control can take. For example, if control is regarded primarily as a matter of directing activity from above, compliance with orders of top management by the lower levels may be considered as a fair measure of the effectiveness of the controls. The audit activity under these circumstances might quite properly be limited to a checking of compliance. On the other hand, if control is regarded primarily as a matter of setting guidelines to achieve predetermined ends,

then both the ends and the means to those ends should be continually re-appraised and re-evaluated.

Perhaps an example will illustrate better a situation with adequate internal controls but inadequate executive controls. Suppose a company began a new function, established a budget for it, and set policies for its operation. The internal audit staff is instructed to "audit" this operation. In their review, the internal auditors find both compliance with policy and adherence to the budget, without exception. But what the internal audit staff may not see, perhaps because they have ignored or lost sight of the objectives of the controls being evaluated, is that changed circumstances fairly cry out for modifications in the budgeted amounts, or even a need for elimination of the operation itself. The internal controls in this case, including internal check, budgetary control, and compliance with company policy, have not been violated. However, several basic management controls may be either weak or non-existent: (1) establishment of objectives for the operation, (2) measurement of actual results against expectations, and (3) reporting of changed circumstances.

Perhaps the most commonly found examples of proper internal control but weak executive control are found in reports that have outlived their usefulness, lack of communication between operating executives and top management, compliance with budgets or procedures when changed circumstances indicate modifications, and elaborate internal checks to safeguard items of relatively small value. In all these cases the objective of the control measure itself has been obscured behind the details of the system. A company can have excellent credit controls, for example, but have these cost thousands of dollars of potential profits as a result of turning down a large number of accounts in order to reduce the chances of a few bad debts. Or a company can have excellent scrap controls, which are expensive, to control a few dollars of scrap. A basic objective of the company, that of maximizing profits, has not been met in these cases.

## THE AUDIT OF EXECUTIVE CONTROLS

Most internal auditors get their basic audit training in audits of internal check. As the auditor progresses in his knowledge of the company, its policies and its personnel, he becomes qualified for audits of internal controls and operations other than those involving pure internal check. The audit of executive controls is the next step in the order of professional development, and is the ultimate service which the internal auditor may render to management. The audit of executive controls begins where the audit of financial controls stops. The principal objective of an audit of

management controls is not to know where the company has been, or what has been done, but what is to be done, or what should be done. The audit of executive controls involves, in addition to the usual internal audit evaluations, a careful review and analysis of the objectives and plans of the company, and all the means by which these objectives are to be met.

While there are no inflexible rules by which any audit should be performed, there are general guidelines which can assist the auditor in his review and evaluations. When executive controls are incorporated in an audit, the following steps should be followed:

1. Determine the objectives of the company, or the division, section, or branch under review. Admittedly this is a difficult task, but it is the foundation upon which the whole control system is built. Only when the auditor has a clear definition of these objectives should he proceed to the next step.
2. Determine the plans which have been formulated to achieve these objectives, and relate specific policies and procedures to these plans. Then determine how well the plans, policies, and procedures meet the objectives. Obviously any review of policies and procedures should start at the top step in the organizational chart and proceed down to the operating levels. Many divisions and subdivisions of policies and procedures will have to be made as the work progresses, each division and subdivision necessitating a separate evaluation.
3. Determine whether the objectives, as well as the resulting plans and policies, have been properly communicated downward. Unlike the usual flow of reports with which the internal auditor is concerned, which moves upward, the important point in executive controls is whether company objectives and plans have been adequately and clearly communicated downward to the personnel who must carry out these plans, or adhere to the objectives.
4. Determine whether the organization of work, personnel, authority, and responsibility is adequate to meet the established objectives.
5. Determine whether some form of periodic comparison of actual results to expected results, or plans, is being made and whether some measure is being made of how well the objectives of the company are actually being met.

## EVALUATING COMPANY OBJECTIVES

The internal auditor's principal responsibility, now as always, is to see that the over-all control system is working effectively. The test for effectiveness, however, goes beyond the notion of preservation of assets and

compliance with procedures. The various parts of any system of controls can be evaluated only in terms of their contribution toward the established goals of the business.

The first requirement for any control is that there be an objective. Without objectives proper evaluation is impossible, and much of the purpose of the internal auditing function is lost. Evaluation of any control, whether it be internal check, internal control, or executive control, cannot be undertaken without a clear understanding of the relevant company norms or goals or objectives which give meaning to the control. In other words, there is no such thing as control without objectives, and to audit results intelligently is impossible without some knowledge of company objectives. Determination of company objectives is perhaps one of the most difficult but most essential tasks confronting an internal auditor. The review and appraisal of objectives represents the highest level of constructive activity on the part of internal auditors, and requires a considerable degree of insight and perception.

A clear understanding of a company's objectives cannot be overemphasized, for without clear objectives the company may drift with a loss of central control over its functioning. Without definite objectives there may be excessive response to pressures from both within and outside the organization, especially on the short-run basis. A clear statement of objectives is the first step in setting a course for the company to follow, and sometimes the only basis for evaluating management's effectiveness.

Objectives are a mixture of many things. Maximizing profits is the most obvious, and should be foremost in the efforts of management, since maximum profits are in keeping with management's responsibility to owners. But "maximum profits" standing alone is not a clear statement of the over-all objective for the company, for it leaves unsaid what the objectives are toward the employees, the community, and the economy as a whole. Company objectives in the following areas must be covered before a company has fully stated its total over-all objectives:

1. Market standing
2. Innovation, or improved products
3. Productivity
4. Physical and financial resources
5. Profitability
6. Managerial performance and development
7. Worker performance and attitude
8. Public responsibility

The internal auditor may be lucky enough to find that his company, or division, or branch, has a formal statement of objectives. He must be careful, however, not to confuse a broad statement of objectives prepared for public consumption with a genuine, objectively prepared, realistic statement of objectives. If the auditor finds that his company has not prepared a statement of objectives for management purposes, he has a responsibility to management in his audit capacity to recommend that such a statement be prepared. In the meantime he may have to determine, as best he is able, what the objectives are by a review of the charter and by-laws, minutes of committee meetings, annual reports, and policy manuals. If company objectives cannot be obtained from these sources, the auditor may have to rely upon verbal discussions with management.

Once the objectives have been determined they must be evaluated. The following are suggested points which might be included in the auditor's program for this evaluation:

1. Are the objectives clear and understandable?
2. Are the objectives sufficiently inclusive, or are major areas not covered?
3. Are the objectives reasonable, and do they properly reflect the company's responsibility to stockholders, employees, community, and government?
4. Have the objectives been sufficiently communicated to the proper operating personnel?
5. Are the objectives of the company compatible with each other, and is there a proper balance between them?
6. Is executive attention adequately focused on the objectives?
7. Should there be more division and subdivision of objectives to make them more clearly understood and easily followed?
8. Will other controls be more effective if more closely defined as part of the stated objectives?
9. Will present controls be effective enough to make the objectives workable?
10. Are the objectives changed so frequently that confusion and frustration result?

This listing is not intended to be all inclusive, but is intended to provide suggestions on important points to consider both in evaluating over-all company objectives and in evaluating the objectives of any other type of control.

## EVALUATING COMPANY PLANS

Plans are in essence the projected actions necessary to meet objectives. Without proper planning the whole framework of executive controls may be meaningless, and systems of internal check and internal control may be compounded into expensive and often meaningless procedures. Even piecemeal planning is better than none at all, but if it is not coordinated, the plans may conflict or be incompatible. The benefits of planning tend to accelerate, for the plans of one department actually help another department plan its activities. However, if there is no over-all plan to coordinate the detail plans, subplanning divisions may suffer considerable lost effort, and a confusion of plans may result.

Again, a list of proposed questions which the internal auditor should answer in his evaluation of company plans has been suggested here to illustrate some of the points which should be covered:

1. Are the plans compatible with the related objectives of the company?
2. Do the plans improve coordination of various objectives?
3. Do the plans anticipate trouble spots?
4. Do the plans leave room for developing more efficient methods?
5. Will the plans increase the workload of executives, or do they permit the proper delegation of responsibility?
6. Does the reliability of forecasting make the plans reasonable?
7. Do the plans lead to unwise commitments?
8. Is the subject matter of the plans sufficiently important to warrant formal planning?
9. Is there time for detailed planning, or is prompt action more important?
10. Will the plans capitalize on the abilities and ideas of individuals in a way that will build morale and insure successful completion of the plans?
11. Should the plan become a standing plan, to be used over and over again?
12. Do the plans assist in achieving uniformity of action in the various divisions?
13. Do the benefits of the plans more than offset the cost of drawing them up?
14. Are the plans too inflexible?
15. Do the plans smother individual initiative?
16. Are the plans properly communicated?
17. Are follow-up methods possible to measure the success of the plan?

The experienced internal auditor is familiar with his role of determining whether plans have been followed. While this is an important part of the control function, an even more constructive assistance to management can be offered through an evaluation of the plans themselves. Evaluation of adherence to plans is an evaluation of internal control, while evaluation of the plans themselves and the planning function is an evaluation of executive controls.

Broadening the scope of its services has long been one of the primary objectives of the internal auditing profession. Audits of executive controls are the greatest single possibility for expanded service now facing the internal auditing profession. In some areas management may resist the internal auditor's work in the field of executive controls. In such cases tact and persuasiveness must be employed, but regardless of the obstacles the internal auditor should do all that is within his power to convince management of the values of having appraisals of executive controls undertaken on a regular basis. Those who are familiar with the development of the internal auditing profession remember the time, not too many years ago, when the internal auditor's review of operations not directly connected with financial controls or internal check was frequently resisted. This resistance has disappeared for the most part, since the auditor has proved his worth in these areas, and today in almost all progressively managed companies operational audits are accepted as a normal part of the auditor's work. There is no reason why this same acceptance should not be realized for audits of company objectives and plans.

# A NEW ENVIRONMENT FOR THE AUDITOR*

By CARL H. SCHOENFELD

Boeing Airplane Company

THE dictionary defines environment as, "all of the surrounding conditions and influences that affect the development of a living thing." We can assume, I am sure, that auditing and the auditor are living things. The changing atmosphere that surrounds us today is, in my opinion, an appropriate subject for discussion.

An evolution is taking place in record-keeping methods. The impact of these changes is now being felt by all of the larger and many of the smaller companies. I am certain that no company regardless of size can avoid these changes and remain competitive.

My company has been in the middle of this evolution for over twenty years—if we consider the use of punched card systems during the first fifteen of these twenty years and the use of large scale electronics equipment during the past five years. The tempo of this change is accelerating. Changes are taking place today that are much more dramatic and much more comprehensive than any of us have ever experienced with punched card systems. We look back and find that we are doing things today that were undreamed of ten years ago. For example, we are preparing our complete payroll with all the federal, state and other employee benefits deductions at the rate of 2½ seconds per employee.

## EVOLUTION IN RECORD KEEPING

My objective today is to impress upon you as auditors the impact of these changes and the part that the auditor will, I believe, play in this evolution. I am not thinking of what we will be doing tomorrow, next week or next month, but of what we will be doing during the next three to five years. It is this longer range impact that I would like to talk about.

We as auditors and managers must have a general recognition of the nature of the changes that are taking place. We must endeavor to understand the nature and magnitude of their impact. To get a better perspective,

* Presented at a Western Regional Conference.

we may look back at what has happened in the first half of this century. The typewriter and adding machine were new and coming into general use. The cash register brought a new dimension in the technique of control. As companies were getting larger, mass production methods were developed. The benefits of specialization and scientific methods of planning work were expounded. This burst of development was based on mechanical discoveries that were rooted back in the 1880's. New terms became a part of the business language, and the function of management took on a new and different meaning.

As machines were perfected they began to creep into the record-keeping operations—slowly at first, but as acceptance increased, at a more rapid rate. To illustrate, punched cards were available in 1913 but did not come into general use until the late 1930's. During this period evolved the large, comprehensive and complicated accounting offices that we find today. As a result, the recording of massive detail so necessary to our current methods has become very expensive, and the problems of communicating have grown increasingly difficult. On this subject, Dr. A. V. Feigenbaum of the General Electric Company in a paper titled "Approach, Analysis and Design of Systems" points out that, "we may have exhausted the benefits of specialization and find the multiplicity of the various levels of control are burdensome." Dr. Feigenbaum speculates that the last half of this century may be notable as a period of consolidation and simplification of the record-keeping function. This, I believe, should remind us that we go through very definite cycles in our concepts of how to accomplish our record keeping.

Now we find new and sometimes exotic equipment coming into common use which I believe is expediting the cycle changes. To illustrate the speeding up of this process, let us take a look at the punched card machine. It was first adopted in the 1890's, was introduced into record keeping in business about the time of the first world war, but did not come into general use until the late 1930's. In contrast, the current electronic machines based on principles applied to radar in the second world war were used for scientific calculations in some universities by 1949, and were already being adopted to commercial record keeping in 1952. This is a span of less than ten years as compared to around forty years for punched card machines. Last year, 1958, over one billion dollars worth of such equipment was delivered to industry. The few who were brash enough to predict this seven years ago were labeled as dreamers or as spinners of fairy tales. Even those of us in large companies, already heavily committed to the use of electronic machines, find it very difficult to recognize and comprehend the part that these machines will play in our record-keeping systems.

Now, let us review some of the things that these machines are doing. New commercial data processing machines range from the very large to the small-scale special purpose equipment. The machine manufacturers are actively designing equipment for general and specific use by all sizes of companies. These machines read standard characters electronically or by means of magnetic ink. The machines can read from punched holes in continuous paper tape, magnetic dots or other media such as a film-like tape, drums, discs and even paper ledger sheets. This brings new terms into our business language such as input, output, random access, magnetic tape, memory access time, interrogation station, redundancy checking, to name a few. Older words are also taking on a new or different meaning such as read, write, word, record, transfer, and many others. We find that we talk knowingly of integrated processing, exception reporting, machine language, etc. These are all signs that change is taking place.

Now let us take a look into the future. These changes are going to continue and very likely at an accelerated pace. General use of new and more powerful tools has in the past been followed by major shifts in methods and a corresponding rearrangement of responsibilities. These shifts and realignments will also need to be accelerated if our companies are going to keep pace with the state of the art.

The impact of an evolution such as this will be felt in all levels of an organization. It has happened in the past and we can anticipate its happening again. Internal auditors, through their charter and their statement of responsibilities developed by THE INSTITUTE, must keep abreast of these changes so that they will be in a position to continue to fulfill their responsibilities. I believe the internal auditor is in a very opportune position to be of material assistance to management. By management I mean all line managers as well as top management.

The impact of the changes, of course, will vary with each industry and with each company within an industry. Some of the problems will be common to all. However, many and maybe most of the problems will be peculiar to a particular company.

## NEW CAPACITIES AND CHARACTERISTICS

Three major characteristics of these new tools make them far different from what we have been accustomed to. These characteristics are making available a new capacity of a magnitude which has never in the past been available to management.

The first characteristic is the ability of electronic equipment to process large amounts of data with extreme speed and accuracy. Our people, methods, and systems must be organized to produce good, clean, accurate data in a manner that assures its availability to the machine in complete form. The data must be available at a time compatible to the machine's schedule. This sounds simple. It isn't.

The second characteristic is the machine's ability to carry on complex manipulations without interruptions on the part of the operator. This implies that the machine knows what it is doing. It doesn't. It will do exactly what you instruct it to do. This characteristic demands that our operations be defined, that we must know in advance what we want done, and that we must state in implicit terms the requirements of our system. Easy? Not very. It is the rare manager who can tell what he needs in the way of records and reports to do his job efficiently. Yours may be the exception, but don't count on it.

The third characteristic is the ability of the machine to make logical decisions on routine matters. This is a bit more complex. The machine arrives at these decisions by comparison with information already made available to it. This requires that the machine be provided in advance with all data needed for these comparisons. Methods and procedures people will be hard pressed to visualize all the possibilities in a complex system. Procedures must be established collectively by people who have a broad understanding of both the problem and the tools. Don't underestimate this.

## NEW WAY OF LIFE

To exploit these capacities and characteristics, we must shift responsibilities, people and even operating philosophies. One may raise the question, "is it worth all this effort?" It is. There are major benefits to be gained. To gain these benefits will require a new way of life in the field of record keeping.

Managers must adapt themselves to this new way of life—they will be required to:

1. Define their requirements. This may come as a considerable shock—particularly when they discover that it has never been done logically and also will discover that much work is involved.
2. Shift the responsibilities of people and organizations. Electronic machines do not recognize departmental or organizational lines. A completely integrated system may cover many or maybe all phases of a company's operations, such as production, sales, shipping, ac-

counting, etc. This shifting of responsibilities becomes very difficult at times because it directly affects the lives and security of many people.

3. Make changes of operating philosophies to conform to new control concepts. Many business and government offices have found the need for increased emphasis on control; and at different spots than they ever had considered in the past. The faster the machines will run, the greater becomes the need for control. A high speed machine system, if out of control, can virtually shake itself to pieces before corrective action can be taken.

## CONTROL CONCEPTS

We as auditors and managers will have to take a new look at our control concepts if we are to obtain economic utilization of these new tools. The general meaning of controls has not changed, but the timing, placement and nature of many of our control points will have to be altered. Attention will need to be given to five specific areas where controls are required.

First, the machine process requires control of original data. Original data has always been difficult to control. Data originates in many places, in many ways, at different times, and in many forms. New data gathering and transmitting devices such as flexo-writers, transceivers and point of origin recorders are coming into use. New Methods must be developed to assure the level of accuracy required by integrated data processing methods. The responsibility for providing good original data will gravitate toward the department or organization responsible for originating or perpetuating the data. This is an example of a shift of responsibility that I mentioned earlier. This is a responsibility that many organizations outside of accounting have not recognized in the past. At the same time, accounting personnel will not be relieved of the over-all responsibility for correctness of data. They must develop methods whereby they can maintain close surveillance without major interference with the data flow. This makes it rather difficult because the data or material which in the past has permitted them to institute checking or auditing operations may no longer pass through their hands.

Secondly, the machine process requires control of data in transit. In the past this has required care and diligence in processing data from hand to hand or from one place to another. New dimensions of control will have to be added as we transfer data by wire from place to place and from one machine to another automatically without any interruptions of the process

cycle. In other words, it will no longer be possible for auditing or accounting personnel to visually inspect data at various steps in the processing cycle.

Thirdly, there needs to be control of the machine process. The control of machine processing is similar to the control of manual processing in as much as qualitative and quantitative controls are used. The difference is in respect to speed and the machine's sensitivity to an out of balance condition. The operator must know what is going in and coming out of his machine process. He must maintain both qualitative and quantitative control during the entire operation. The controls must be built into the machine program—any other kind of control will prove too slow. I am not advocating that the auditor become technically equipped to thoroughly understand all aspects of machine programming. However, the auditor must have a good general understanding of machine processing and be able to judge the effectiveness of an integrated program. In the past the auditor was able to look at and examine the various parts one at a time, but in the future the auditor will have to examine the entire processing cycle.

The fourth type of control is the accounting or book controls. This is the type with which you are all familiar. These controls prove that all parts of the various systems are in harmony with each other. Accounting controls must not be confused with processing controls. Processing controls prove that each operation is valid and accounting controls prove that all parts of the system are properly executed in total. This again requires the auditor to be able to evaluate the over-all system and the relation of each of the parts to the other parts. At first this may not seem too difficult. However, as the integrated systems grow and cover more parts of the company's operations, the auditor is going to be faced with a real challenge.

The fifth and last type of control is the control of information that has been rejected by the machine process and requires completion or correction before being re-entered. This type of control is not unique to the machine system. However, smooth running manual systems generate comparatively few items of this kind. A machine system is designed to reject all items it cannot handle. I believe as a general rule we have grossly underestimated the number of exceptions that a machine process will produce. Probably what is happening is that we are finding the errors that have always existed in our system but have never before come to light. It often happens that a machine system rejects erroneous items at a much, much higher rate than we are able to handle.

The important feature is that all data once rejected must be corrected, adjusted or modified and must be re-entered into the next machine cycle. If

anything prevents it from re-entering the machine system, it is equivalent to not entering the item in the first place. Controls of these rejected items must be established, and they must be as positive and as stringent as the controls placed on the original entry. This will be a very important audit point. The auditor will obtain some very good leads as to the adequacies and soundness of other controls and the general operation of the system.

Data discipline is a term that we will hear more of in the future. This term may appear to be synonomous with control; however, it is not. It includes such things as completeness of data, proper format, proper codes, proper characters—alphabetical as well as numerical—as well as the timing and the scheduling of information. It covers the entire area of quality of the recording, including proper authorization. High speed systems are as dependent on data discipline as high compression engines are on hi-octane fuels.

In summarizing the control aspects, we have tended in the past to clean up data as we process. In the future this will not be possible when we process by high speed machine. The accuracy and correctness of the results will be directly dependent upon the accuracy and correctness of the input. This new look at our concept of control is a part of this changing environment in which we will be working in the future.

## EFFECT ON INTERNAL AUDITOR

As we have gone through some of these changing philosophies and changing control concepts, you may already be visualizing the effect upon your internal auditing function and the effect upon the role that you as auditors will play in the operations of your company. The auditor, I believe, is in a unique position to observe these happenings and may be able to predict some of these changes. He can be of immense value to his management in discussing some of his observations and advising and assisting other managers through most difficult periods.

In my opinion this is well within the objective and scope of internal auditing. This is a part of furnishing members of management with objective analysis, appraisals, recommendations and other pertinent comments concerning the company's activities. The auditor is normally sensitive to many of these conditions and circumstances through the conduct of his regular auditing work. He may be the only one who can observe some of these trends without having a personal interest in them. He has a splendid opportunity to apprise his management of changing conditions and assist in the development of courses of action that appear most beneficial.

On the other hand, a person can very quickly, and with some justification, conclude that this is bigger than all of us. You can agree that a change is coming and merely sit back to wait and see how it turns out. You can also assure yourself that there will always be a need for an auditor. These I'll admit are comforting thoughts. But if you as auditors and we as managers are going to continue to grow, we must take the necessary steps to qualify ourselves for the advancements in the technology of record keeping and over-all system operations. This is the only way that we can avoid the danger of being by-passed by others who are better qualified in the new ways of doing things.

We must keep pace with these new developments and maintain a speaking acquaintance with the applications and techniques used in machine processing. We must be able, as auditors and managers, to do our part in getting the most effective use out of this equipment to keep our companies in a strong competitive position.

We need to develop a broad view of changing methods, new and improved tools, new systems, and new control concepts. We will have to be prepared to deal with changes in organization, in records and techniques. We will also have to recognize that we are affecting the livelihood and the future of many people. We cannot jeopardize their feeling of security. They are dependent upon management for their welfare, progress and general security. This is a real challenge to management. The changes in the nature of existing duties and responsibilities will create many new jobs and opportunities that never before existed.

Auditors must also be able to apply good judgment. There will undoubtedly be times when the auditor will recommend that management apply the brakes if it appears that they are going too fast and are in danger of losing their balance. At the same time, the auditor may be recommending that management apply greater push in other places or in other parts of the system. This may appear to be inconsistent, but it is very important than an over-all balance be maintained.

## EFFECT ON PERSONNEL

I would like to spend a little more time in talking about the impact of change on people. We have often heard that people fear change. It is inconceivable to me as I review the tremendous changes that have taken place, that this could have been accomplished if people feared change. The fear that exists is that of a threat to their security. If a change threatens this security, the normal reaction is to resist it. We as managers and you

as auditors must work together to find ways and means that changes can be made without any implied threat to people's security. This is difficult but it is possible, as many companies are discovering.

Categorizing people is very risky, but sometimes for my own use I tend to divide people into three types:

1. Those who see changes as an increased opportunity. They will be willing workers and their enthusiasm will be needed.
2. Those who believe changes will be beneficial but are apprehensive as to the methods being employed. If they are sincere they make wonderful critics. Their experience and judgment are invaluable.
3. Those who view change as a personal threat. These people must be used in activities that cannot interfere with the implementation of new methods. After a new method has become established and is routine, they can be brought back into the activity with very little difficulty.

The above types will be found at all levels of an organization. Ultimately, people in all three categories must be satisfied. Here again, the auditor is in a good position to observe the attitudes of people that are involved in or are affected by the change. This may be getting into matters that the auditor cannot put in his written report but will have to discuss orally with members of management. From my experience, managers appreciate and value this type of comment and observations more than the material often contained in the auditor's written report.

## SHIFTS OF RESPONSIBILITY

As I mentioned before, organizations and responsibilities will shift as changes are made. The new equipment is capable of absorbing large amounts of work, which makes integration and consolidation of various functions probable. This will also cause gravitation toward the data processing center, which sets off shifts of responsibilities. It becomes necessary that a distinction be made between the responsibilities of determining what is to be done and the responsibility of determining how it is to be done. Our accounting and other operating organizations will have to assume greater responsibilities in the area of determining what is to be done. It will require a much sharper focus of these responsibilities than we have had in the past. The job of determining how it is to be done will be that of the data processing organization. They will have the expert programmers and technicians who will design the method of machine processing and tie in with other integrated processes and schedules. It is not easy to distinguish between these

two types of responsibilities. There is a considerable amount of overlapping. There can be disruption, hard feelings and animosities between the data processing organization and other organizations. This is another area where the auditor, having no personal interest, can be of material assistance to management in advising and suggesting courses of action.

General operating procedures which provide the mode of operation have always been either written or approved at a rather high level. Lower level personnel have interpreted these general procedures and either formally or informally have prepared their own working procedures. This operation has been so completely absorbed by the line functions that we seldom realize that it exists. With the shift to integrated machine systems, people at this lowest level of procedure writing lose their ability to produce working procedures. It will be impossible for them, without a great deal of orientation, to understand the relationship of their group to the whole integrated system. Until a new system is completely understood at all levels, the working procedures must be developed by those who have a complete understanding of the new system and how it works. Very often this will have to be done at a rather high level in the organization which may appear completely out of context with the type of responsibilities ordinarily associated with that high a level. This is very often overlooked in the planning stage. Here again the auditor is in a good position to evaluate and report on the type of procedure coverage and the general results that are being obtained or the effect upon systems operation.

## CHALLENGE

I have highlighted some of the features of change that are taking place within our business activity. I don't know whether you will be affected by some of these changes tomorrow, next year or five years from now. I believe that you as auditors can make a real contribution to your company. Keep abreast of these changes by assisting and working with your management and by doing whatever you can to prepare your company for the future. However, there is one caution that I would like to make. You may not remain as auditors very long. You may find yourselves in a management position where you are the one who is doing the planning and directing of these changes within your company. It is a real challenge, gentlemen, and we must do everything we can to prepare ourselves and our companies for this continued evolution in record-keeping processes.

# PRACTICAL ASPECTS OF AN OPERATIONAL AUDIT*

By RICHARD W. OSBORNE

Lockheed Aircraft Corporation

DURING the past ten years, operational auditing has received tremendous impetus. One can find ample evidence to the truth of this statement in a number of places. Our own statement of Responsibility, adopted in 1947, stated in part that, "Internal Auditing deals *primarily* with accounting and financial matters, but *may* also deal with matters of an operating nature." In 1957, the statement was broadened to place equal emphasis on matters of an operating nature by stating, "Internal Auditing is an independent appraisal activity within an organization for the review of accounting, financial *and* other operations as a basis for service to management."

At the suggestion of our International President, Bill Lehmann, our theme for this year has been "Widening our Horizons," a theme that carries with it strong overtones that we give operational auditing more of a place in our work. And, finally, many articles about operational auditing have been published in our magazine, THE INTERNAL AUDITOR.

These and other articles, in most cases, dealt with the importance of this type of auditing. Such material is, of course, necessary and extremely helpful in this still relatively new phase of internal auditing. But the need for information on how to perform audits of this nature is of importance to all of us. It is my purpose here, therefore, to describe some of the techniques used for performing operational audits.

First, as a means of establishing a frame of reference for the discussion to follow I should like to define operational auditing. When performed on an organizational basis, I see it as an independent appraisal by the auditor of the manner in which an organization is conducting itself in carrying out the responsibilities assigned to it by Management. When performed along functional lines, I see it as an appraisal of the manner in which several organizations are performing a function with which they are all concerned.

From these definitions you can well imagine that operational audits can cover many phases of a company's activities. For example, here are

* Delivered at a Los Angeles Chapter meeting.

some titles of typical operational audits which we regularly perform at Lockheed.

On an organizational basis, we examine:

Office Services, Plant Engineering, Personnel, Purchasing, the Group Insurance Unit, the Project Planning Division and the Shipping Department.

On a functional basis, we examine:

Controls Over Management Budgets and Forecasts
Insurable Values Reporting
Control of Manufacturing Aids and Functional Test Equipment
Fixed Asset Budgets and Control of Expenditures.

I believe there are five distinct and basic parts to an operational audit. They are:

a. Planning
b. Making the Preliminary Survey
c. Preparing the Program
d. Performing the Field Work
e. Preparing and Clearing the Report

I want to examine in some detail each of these five basic parts and discuss the various aspects of the planning, preliminary survey, programing, field work, and reporting phases. In so doing, I plan to restrict my comments to operational audits for an organization.

## THE PLANNING PHASE

During the planning phase, we should attempt to find out, broadly, what management expects of the organization under review. Moreover, at this time we should consider our broad purposes and objectives and begin our initial research.

Adequate audit coverage must begin here. To achieve such coverage, the auditor must determine first and foremost the mission which management has given the organization. Usually this can be found in statements of functions and responsibilities or organization manuals. If it is not in writing, it should be obtained orally from a responsible official under whom the organization is placed.

When the primary functions have been determined, they should be amplified by examining such sources of information as:

Policy Statements
Management Instructions

Manuals
Prior or related audit reports
Text books
Articles in professional magazines

During the first phase of the audit, development of the working paper file could well be started by listing the various definitive responsibilities assigned to the organization under audit with references to pertinent data gleaned from the aforementioned source material. It may be necessary to modify this listing as subsequent inquiry reveals responsibilities added or abandoned, but at least it is a starting point for the audit.

## MAKING THE PRELIMINARY SURVEY

For the preliminary survey, the research that has been performed in the Planning stage can furnish information for a questionnaire with which the auditor can arm himself to perform quickly and comprehensively the all-important preliminary survey of the organization under review. The preliminary survey is a valuable tool. It can be accomplished quickly, and yet it will give a panoramic view of the organization's operations and will tell how the supervision of the organization expects its operations to be performed.

Essentially, the preliminary survey is designed to accumulate information, without verification, from discussions with supervisory personnel. It seeks to determine the relative significance of the different responsibilities: those responsibilities which have been undertaken, but which did not appear in official statements; and those responsibilities which have been dropped. During the preliminary survey the auditor obtains organizational and functional charts and determines the number of personnel employed, the division of functions, over-all volume statistics, location of records, nature of problems encountered by the organization, and areas which supervisory personnel believe warrant particular attention. It is often of value during this phase of the audit to leaf through general correspondence sent and received during the past year or six months as a means of gaining a clearer insight into the general activities of the organization.

At the conclusion of the preliminary survey, the auditor has begun to get the feel of the organization: its self-set objectives, its problems, its physical layout, and the relative significance of the various responsibilities assigned to or assumed by the organization.

The need for determining the relative significance of responsibilities cannot be overemphasized. It must be kept in mind while programming,

during the field work and in reporting. It tells the auditor at the outset how much time he should expect to spend on the different phases of the audit. It will help him decide how serious a particular deficiency may be: does it go to the heart of the organization's operations, or is it merely incidental? It will tell him how much stress or space should be allotted to the discussion of the deficiency in the final report. It will affect his over-all opinion of the organization's operation.

## PREPARING THE PROGRAM

Having performed his research and his preliminary survey, the auditor is now in a position to prepare his program. A program is as helpful and as vital to an auditor embarking on his field work as a map is to a traveler setting out on a strange course. And the fact that the auditor has had no previous experience with the operations of the particular organization under review or with organizations of a similar nature should be no bar to his preparation of a workable, intelligent program. He has determined the organization's responsibilities and has obtained a fairly good picture of its operations. Armed with this information, he need but apply three basic principles to each operation:

Cost
Quality
Timeliness

The disbeliever might protest that while the auditor may be able to apply these principles to an operation which he is technically qualified to appraise, how could he possibly prepare a program that would permit appraisal of an operation beyond his technical abilities? Let me give you an example of how it can be done. At Lockheed, a group in the Engineering Branch, called the Materials and Processes Group, composed of engineering specialists, prepares specifications for the materials which Lockheed buys and for the processes to which the materials will be subjected. These specifications are published in the form of technical documents. The auditor does not, cannot, and is not expected to question the substance of these specifications. But he can perform an audit function with respect to them, and he can program that function. (Ordinarily, it is wise for the auditor to make his program elastic and not too restrictive. One way to achieve such flexibility and adaptability would be to prepare a program for a function such as this in question form.) Using as a guide the principles of cost, quality and timeliness, here might be a program for the review of materials and processes specifications:

*With Respect to Cost*

1. In preparing or revising specifications, has the Specification Engineer given consideration to differences in costs resulting from the use of the new material or process?
2. Have the cost estimates been obtained from authoritative sources?
3. Have they been obtained in writing?
4. Have the estimates been furnished to the supervisory personnel responsible for approving the proposed specification?
5. Have the cost estimates been retained in the permanent files for the specifications?
6. Is the method of duplicating the specifications too expensive?
7. Is the distribution list excessively large?
8. Is the distribution list periodically circularized to determine whether it warrants revision?

*With Respect to Quality*

1. Does the format of the specification seem clear and reasonable, and is it consistent among the various specifications so that specification readers may be able to find the sections in which they are most interested with the least expenditure of time?
2. Has management prescribed a standard format which would serve the purpose implied in the preceding question and also serve to act as a check list to make certain the specification writer will not forget a particular point?
3. Since Inspection is bound to be involved in each specification, is there a separate section in the specifications clearly designated as "Inspection," "Testing," "Quality Assurance" or the like?
4. Are the specifications subject to supervisory or other review prior to issuance?
5. Have all required approval signatures been obtained?
6. Has a record of investigation been prepared showing the reason for the specification and the research done prior to its preparation?
7. Does this record of investigation accompany the draft specification when it is submitted for approval?
8. Have the users of the specifications been given an opportunity to review them before they are officially issued? and finally,
9. What do the users of the specifications think of them? (In order to find out, the auditor might discuss specific representative specifications with such organizations as Receiving Inspection and the Production Departments and ask how in their opinion the specifications could be improved, how promptly they are being received, and how usable they are.)

*With Respect to Timeliness*

1. Is a record prepared to show the date a specification has been assigned to an engineer for research and preparation?
2. Does the record contain an estimated due date?
3. Are these records reviewed periodically by supervision and reasons for any delays determined?
4. When specifications are submitted for approval outside the group, are control cards established showing dates transmitted and dates received?
5. Is appropriate follow-up action taken to determine reasons for delays in returning the draft submitted for approval?

These are typical of many questions that the auditor can program in conducting an operational audit of a technical function. Posing such questions provides the roadmap needed by the auditor to determine, finally, whether or not adequate safeguards have been provided and are operative to ensure that proper care is exercised with respect to the appropriate discharge of the cost, quality and timeliness aspects of a function.

I do not feel that the auditor need concern himself at this point in his program with the extent of the tests he plans to make. This will depend, of course, on such factors as the detailed controls in effect and the volume of the individual items to be tested, as well as the time which the auditor can economically spend on the function.

## PERFORMING THE FIELD WORK

Performance of the field work is a many faceted activity. In summary, the auditor:

1. Analyzes the detailed steps and controls of the various functions, and the written procedures, if any, covering those functions;
2. Solicits from supervision, or determines from the written procedures, standards of performance;
3. Ascertains the volume of items subject to test;
4. Determines how he will make an unbiased selection of the items he will examine;
5. Describes the detailed audit steps he proposes to perform;
6. Makes the detailed verifications and summarizes them;
7. Appraises the test results;
8. Forms an opinion as to the adequacy or inadequacy of written procedures and actual performance;
9. Describes in his working papers the corrective action which might cure the deficiencies he has found; and, finally,

10. Discusses deficiencies with line supervision and explores with them the suitability, economy and effectiveness of any corrective action that he may have in mind.

Let me amplify some of my thoughts about these various facets.

*With Respect to Reviews of Written Procedures*

Procedures may be viewed as an expression of management's expectations of how an activity will be performed. Since we are basically in business to inform management as to whether or not activities are being performed in accordance with its expectations, it necessarily follows that it is essential for the auditor to gain an understanding of procedures. As a practical matter, it is desirable for the auditor to gain that understanding as early in the job as possible. In this connection, I have found that it helps to include explanations of procedures in the working papers, for the reason that in order to explain procedures, one must first understand them.

*With Respect to Standards of Performance*

In operational auditing we have few if any of the performance guide lines which are so numerous in financial auditing. Should the auditor set arbitrary standards, such standards may very likely be disputed by line supervision. It is well, therefore, for the auditor to determine in advance of his verification the standards that management has set for the organization by means of job instructions, manuals, procedures, policy statements or the like. In the absence of written standards, it would be to the auditor's advantage to come to some general agreement with line supervision as to reasonable standards of performance.

*With Respect to Volume of Items Subject to Test*

It is usually well to determine the volume for the latest annual or other appropriate period, and it may be helpful to determine whether this volume has increased or decreased over a period of years. Incidental to the testing implications, it might well be that when the volume of work is related to the number of personnel employed during the period evidence of overstaffing may be disclosed. In any event, I feel that the determination of the total population from which the audit tests are made is important. The reader of the report often wants to know, "How many of the whole did you test?"

*With Respect to the Selection of the Items for Test*

The working papers should always show specifically how the selection of items for test was made. The selection unquestionably should be unbiased:

extreme care should be taken so as not to combine "apples and oranges." It should relate to a current period to avoid the imputation of flogging a dead horse. Finally, the selection should be broad enough to lend credence to the auditor's conclusions based on his tests of that selection.

*With Respect to Describing the Detailed Audit Steps*

The comments in the working papers should indicate precisely what the auditor hopes to determine in a particular test. These comments should set forth the purpose of the test and the steps planned to be taken and finally taken to satisfy that purpose. I feel that formulating a statement of purpose is extremely important. If the auditor is unable to give a clear, intelligent reason for the test he is about to make, the chances are better than even that the results of his test will be of little value.

*With Respect to Making the Verification*

Verification, of course, should be meticulous, and equal care should be given to the examination of each of the items selected for test. Moreover, whenever possible, data being verified in one organization should be verified by reference to whatever related information may be available in other organizations. The records of verification should include any explanations solicited from individuals either performing the operations under review or affected by them. Recording the names of the people with whom matters are discussed, their titles, and the dates discussions were held is important. This is particularly true if the individuals make admissions of deficiencies or agree to the significance of a deficiency. Whenever judgment is an important factor in connection with the item being examined—and this is often the case in operational audits—an effective support for the statement of the deficiency is the agreement of the operating personnel involved.

*With Respect to Summarizing Test Results*

A clear summarization of findings is not only helpful, it is essential. Putting the results of an examination into statistical and readily understandable form should be the goal of summarization. In connection with our review of the material and processes group, let us say, for example, that we have tested 50 material specifications. Our test summary might give the following information:

| | |
|---|---|
| Total material specifications issued during the year | 158 |
| Specifications examined | 50 |
| Those not supported by records of investigations | 9 |

| | |
|---|---|
| Those lacking all required signatures | 0 |
| Those which did not have a clearly defined section covering Receiving Inspection | 14 |
| Those considered deficient by a using organization | 1 |

*With Respect to Making the Appraisal*

The appraisal is concerned with both the adequacy of existing written procedures and the adequacy of the actual performance. In appraising the results of verification, consideration should be given to such things as whether the deficiencies which have been found are significant, how they occurred, and whether under existing circumstances they are likely to happen again.

*With Respect to Formulating an Opinion*

Opinions are an outgrowth of the appraisal activity and are the auditor's determination of whether or not procedures are effective and whether or not an activity has been performed satisfactorily. In the example I have used tonight, it would be my opinion, based on the results of the review and appraisal of procedures and performance, that the supervisory review of specifications was inadequate, that specification format was less than satisfactory, and that instructions on the preparation of the specifications were incomplete. You will note that no attempt has been made to express an opinion as to the technical merits of the content of the various specifications examined because this was considered to be beyond the auditor's competence to determine.

*With Respect to Advancing Suggestions for Corrective Action*

The auditor should be extremely careful in formulating his suggestions for corrective action. At Lockheed we try to make it very clear that we are offering suggestions, pure and simple, and not an iron clad way to attain corrective action. We have also tried over the years to make it plain that if our suggestions are accepted we are not necessarily precluded from criticizing them in our next audit if they are no longer effective. In any event, it seems to me that any suggestions advanced by the auditor should be able to stand certain tests.

1. Are the corrections he proposes economical? Would they possibly cost more to install and maintain than a continuation of the deficiencies?
2. Is this the only way to correct the deficiency? Are there other much simpler, if slightly less perfect methods available?

3. Does the proposed corrective action go to the heart of the deficiency or just correct surface matters?
4. Does the proposed corrective action take completely into account why the deficiency occurred and who was responsible for it?

*With Respect to Discussing Deficiencies with Immediate Supervision*

I am a firm believer that detailed findings should be discussed with the immediate supervision of the operations under review as the findings are encountered during the course of the examination. These discussions should point out the nature of the tests and the results, showing specific examples of deficient items found in the test sample and satisfying any questions on the adequacy of the tests.

In the event the supervisor agrees with the findings and their significance, his comments should be recorded in the working papers. If he disagrees, his reasons should be determined and also recorded in the working papers. As I have mentioned before, since the factor of judgment so often enters into operational audits, it is well to have in the record, whenever possible, evidence of concurrence with the auditor's findings. Also, if supervision takes corrective action during the course of the examination, a copy of the document representing such action should be included in the working papers.

## REPORTING

And now we come to the fifth and final phase of an operational audit; namely, preparing and clearing the report. So much has been written and said about audit reports that it is difficult to say anything on the subject without being trite. However, at the risk of being just that I should like to make these few comments on the subject of reports.

The importance of the auditor's report cannot be overemphasized. It is our end product and for many of the more important members of management affected by our examination the only tangible thing about the audit that they see. It therefore behooves us to exercise considerable care in the writing of our reports to ensure that they are clear, concise and fair. Moreover, they should be factual and presented in a manner that leads to logical conclusions.

I heartily concur with the advocates of positive type operational audit reports. I realize that this is a controversial subject; however, it seems to me there is nothing we can do that will more favorably enhance our relationship with client personnel than to avoid deserving the reputation that

we are basically negative in our outlook, that all we can do is criticize. Certainly, the preparation of positive type reports requires more time and effort; however, in my opinion, the benefits to be derived from this type of reporting in improved client relationships alone more than offset the extra efforts required.

At Lockheed, we often find it is useful to include in our reports a crisp summary of the findings and a separate digest of the suggestions that have been advanced. These summaries are intended to point up the audit reports for the readers and to help out the cataloging of the findings for follow-up action.

And finally, I would suggest subjecting the audit report in draft form to a thorough review with each affected supervisor and manager. Of course, in part, this is for the auditor's own protection, because in the operational auditing field, conclusions which seem to the auditor to be unquestionable sometimes have a way of getting their underpinnings knocked out from under them in discussions up the line of administration.

I would suggest avoiding the practice of leaving the report drafts for review and written comment. If this is done, the reports will generally not get the attention they deserve. A thorough review should be forced through a joint reading of the report by the auditor and client personnel, thereby stimulating oral discussion.

## CONCLUSION

I have tried to indicate in this discussion that we are observing a most significant change in the scope and practice of internal auditing. Once a field that was limited to little more than routine checking, its range has been extended enormously. This broadening of scope has imposed heavy responsibilities on the internal auditor, and I have suggested an approach to discharging these responsibilities by breaking the operational audit into five distinct phases:

Planning
Preliminary Survey
Programing
Field Work
Reporting

# INVENTORY INVESTMENTS

## SOME NOTES ON PLANNING AND CONTROL

By H. J. HINTZE

Unilever Limited

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### INTRODUCTION

CAPITAL shortages and credit restrictions make it increasingly difficult for concerns, big or small, to finance desired investments. One way of coping with this situation is to release part of the values tied up in their own activities, for example by reducing inventories. It is usual for companies to keep excessive stocks for the sake of safety, and in certain countries such as Sweden and Finland, this practice is encouraged by existing tax regulations permitting the forming of hidden reserves, the maintenance of which in their turn necessitates the holding of unnecessarily large inventories.

As it is generally assumed nowadays that the "owning" of inventories costs at least 15% per year of the value invested, excessive holdings mean not only needlessly tied up capital but also the incurring of substantial expenses.

The general scope of the present research may well be defined by quotations from an English and a Swedish author respectively, *viz.*: "The difficulties of inventory management have always been present in varying degrees, but by careful manipulation (= planning and control) it is possible to minimize their effect. . . . The proper goal is a predetermined risk of failure rather than 100% success" (R. Silk); and, "Well balanced planning and control of inventory investments probably offers one of the most fruitful fields for large savings, substantial reductions of stocks being a practicable proposition in most businesses." (Y. Rollof)

For obvious reasons, there are no universally applicable rules for inventory management, each industry having its own specific problems. As regards actual procedures, two different schools of thought can be said to exist:—one believes in experience, judgment and intuition—a little contemptuously referred to by its opponents as "the practical life people"—whereas the other relies on mathematical and statistical methods. One can argue for and against both, but there is nowadays a definite trend towards statistical solutions, especially since electronic data-processing machines have come into more general use.

The attached notes, which necessarily had to be confined to basic questions, concentrate on the *economic* aspects of inventory management as reflected by recent investigations and literature in Scandinavia and in the Anglo-Saxon countries. The terms "stocks" or "inventories" include production materials, goods in process and finished goods as well as operating supplies and maintenance materials, no distinction being made between "stocks" and "stores," unless otherwise stated.

## PLANNING OF INVENTORY INVESTMENTS

### 1. *General Considerations*

The main objective of every business should be to sell, and the only valid reason for holding inventories should, consequently, be to meet sales demands. As the latter are apt to vary, inventories have to be planned to serve as a buffer against variations in sales.

Apart from selling, factors which have a bearing on stocks of goods are production and buying. Efficient inventory planning requires, consequently, procedures, worked out in detail and integrated, for:

— Sales forecasting
— Production planning (including questions of storage and transport)
— Purchase planning

It should be appreciated that a close interdependence exists between the above three functions, the size of the inventories being affected as soon as changes are made to any of the components.

The achievement of a smoothly working planning system demands a certain "unselfishness" from those responsible for the above functions, *viz.*:

— Sales management should refrain from insisting on unnecessarily large stocks of finished goods to meet customers' demands under any circumstances.
— Technical management should not insist on holding unnecessarily large stocks of raw materials, ingredients and packing materials to guarantee continuity in the flow of production, irrespective of the cost.
— Buying department should not make unnecessarily large purchases for the purpose of showing "profits" of its own—especially if these profits are eaten up elsewhere by inventory-carrying costs.

Special planning problems may arise from occurrences which one can neither foresee nor influence and which often require rapid switching to alternative plans. Examples of this type are missing or delayed deliveries,

drastic rises or falls in raw material prices and failures of harvests or hunting and fishing campaigns.

The planning of alternatives can become so complicated that the only way of arriving at a satisfactory solution is some form of operation analysis, such as linear programming. Examples of the type of problems encountered are the following:

— Are numerous small deliveries, with consequent high transport costs, preferable to few large deliveries, causing high inventory holding costs?
— Is it cheaper, and more efficient, to hold stocks of goods in own warehouses or in rented premises?
— Is it more advantageous to buy under contract—for successive deliveries on call—which enables the supplier to plan a large scale and rational production, or should current orders be issued instead, based on actual sales figures?

2. *Drawbacks of Faulty Planning*

As various disadvantages and unnecessary costs arise from excessive as well as from insufficient inventories, the size of holdings should be planned as carefully as is consistent with a reasonable amount of work.

This argument becomes, if anything, more convincing in the light of certain recent Scandinavian investigations into the average capital tied up in inventories. The relative figures for a number of representative concerns lie between 15% and 35% of total turnover; if the value of the stocks of finished goods were included, these percentages would rise to as much as from 25% to 40%.

Some of the chief disadvantages and costs to which faulty planning gives rise are:

*In the case of unnecessarily large holdings*

— The tying up of capital which might have been used for investments offering a better return.
— The incurring of unnecessary expense caused by the physical ownership of inventories (see also Cost of Owning Inventories, p. 42).
— A limitation for the buying department to take advantage of favorable purchase offers; this, as a rule, gives rise to high average costs by reducing buying flexibility.
— A risk that the stock on hand will deteriorate or become obsolete.
— Difficulties in making desirable changes in production processes.

— The possibility of losses through price-falls resulting from technical improvements.
— Likeliness of storage space becoming insufficient.
— Difficulties in surveying and in making an inventory of the stock on hand.

*In the case of insufficient holdings*

— A risk of stops in production with consequent costly waiting periods, owing to the required materials not being available at the right time.
— Difficulty in maintaining even product quality due to emergency purchases.
— Unnecessarily high transport costs through emergency purchases at premium rates (air or express freight).
— Loss of customers, or at least their goodwill, through orders repeatedly remaining unfilled.

In the past it was common belief that the holding of extra large stocks was a protection against possible world market crises. Nowadays many experts consider this a fallacy as, notwithstanding expected rises in prices, it is usually possible to increase the quantities stipulated in current purchase contracts for later delivery so that it becomes unnecessary to hold large stocks. Needless to add, the risk of losses from sudden price-falls, which may be disastrous in the case of unnecessarily large stocks, remains as great as ever.

To sum up, the risks inherent in the carrying of bare minimum stocks must be balanced against the expenses and disadvantages arising from unnecessarily large holdings. Inventory-owning costs are, in fact, nothing but insurance premiums, paid to provide coverage against losses from production stops and customer goodwill. These losses can be statistically measured, while the cost of owning inventories is ascertainable from the accounting records. The information in question should provide a basis for management to decide how much insurance coverage it is willing to buy.

3. *Cost of Owning Inventories*

The magnitude of inventory-owning costs as well as the cost elements vary from country to country and from one enterprise to another. Certain common features can, nevertheless, be distinguished. At this stage it should be realized that the costs in question are unknown in many enterprises as they are rather difficult to establish; in addition, doubts often exist about the inclusion or omission of individual cost factors.

If it appears uncertain whether a given cost should be included or not,

the simplest procedure is usually to ask oneself: "Would this cost decrease if inventory levels were reduced but production and sales levels maintained?" Only if the answer is in the affirmative should the relative cost be included.

Recent investigations in the United Kingdom, the United States and Scandinavia have shown the following typical costs for owning inventories in the respective countries:

*United Kingdom* (In percentages of the average annual inventory holding)

| | |
|---|---|
| Interest on invested capital | 4.5% |
| Wastage and loss due to storage or to measures for preventing this | 3.0% |
| Internal handling and distribution costs | 5.0% |
| Cost of storage space (both the company's own and rented), demurrage on ships and other craft, etc. | 2.0% |
| Cost of insurance | 0.1% |
| Cost of office work necessitated by the carrying of stocks | 0.5% |
| Total cost | 15.1% |

*United States*

The U. S. Department of Commerce estimates inventory-owning costs to amount to as much as 25% a year of the average inventory values. Included in this total are 6% for interest and as much as 10% for losses from goods becoming obsolescent or outmoded, which is likely in industries subject to rapid technical developments or to fashion changes.

*Scandinavia*

A typical Scandinavian example is the breakdown for 1957 of the inventory costs of ASEA, Sweden's biggest producer of electrical machinery and equipment. It should be noted that the cost of wages and salaries has been segregated for all inventory handling operations.

| | |
|---|---|
| Interest on invested capital | 30% |
| Wastage and loss due to storage or to measures for preventing this | 8% |
| Wages and salaries for work necessitated by the carrying of stocks | 31% |
| Internal transport costs (excluding wages) | 8% |
| Cost of storage space (both the company's own and rented) | 12% |
| Cost of equipment required for handling of stocks | 6% |
| Sundry small expenses | 5% |
| Total cost | 100% |

As regards the "imputed" loss of interest on capital invested in inventories, different bases can be used for determining the return receivable on alternative investments. Whereas some companies take the normal yield rate of capital invested in the business itself, others use the rate obtainable on outside investments. In the latter case not only current bank interest should be considered, but also other, possibly more advantageous, forms of investment.

4. *Speed of Turnover*

One effective way to reduce tied-up capital is to increase the pace at which the inventories are turned over in terms of value. A company which turns over its stock of raw materials twice a year ties up an amount of capital corresponding to 50% of the total value annually consumed. Obviously, inventory-carrying costs would diminish considerably if one succeeded in turning the stock over three times a year instead. A help for clarifying this position is a so-called distribution curve, which shows how the total annual consumption value is distributed between the various articles held in stock. As likely as not, the curve will prove that:

— a small number of articles account for a large part of the total annual consumption value;

— a large number of articles account for a small part of the total annual consumption value.

(As a rule, as little as 20% of the number of articles in stock account for 80% or more of the total annual consumption value.)

A distribution curve is also helpful in arriving at certain conclusions for which it is difficult to find another reliable basis, *viz.*:

— To estimate the total amount which may defendably be tied up in stocks of goods;

— To obtain an answer to management's demand that the total inventories be turned over a certain number of times per year by ascertaining how often individual materials have to be turned over in order to achieve the over-all object;

— To form an idea of the effort required to bring about a certain value turnover, for example in the form of work incurred by the buying department.

The distribution curve for a medium-sized Scandinavian concern shown in Exhibit I (see page 57) is based on the following data:

| *Value Group* | *Number of articles* | | | *Value of annual consumption* | | |
|---|---|---|---|---|---|---|
| | *Per Group* | *Cumulative* | *%* | *Per Group* | *Cumulative* | *%* |
| (In thousand Kronor per year) | | | | | | |
| A — Over 1,000 | 5 | 5 | 1 | 15,019 | 15,019 | 46 |
| B — 450 to 1,000 | 8 | 13 | 3 | 5,082 | 20,101 | 62 |
| C — 200 to 450 | 15 | 28 | 6 | 4,452 | 24,553 | 76 |
| D — 100 to 200 | 19 | 47 | 10 | 2,733 | 27,286 | 84 |
| E — Under 100 | 445 | 492 | 100 | 5,109 | 32,395 | 100 |

To increase the rate of turnover effectively, it is sufficient to concentrate on the five articles which account for 46% of the total annual consumption value or, if practicable, on the 47 articles which account for as much as 84%. These items should be procured only after careful planning based on current sales forecasts and production programs.

The above method, which is called selective inventory control, admittedly requires a certain amount of extra work, but on the other hand, it has the advantage of being confined to a relatively small number of articles.

5. *Minimum and Maximum Stocks*

A company carrying insufficient inventories risks finding itself unexpectedly without any production materials whatever on account of unforeseen deviations from the normal course of events. Every increase of the stocks decreases this risk but correspondingly increases the costs and disadvantages incidental to the owning of inventories.

One tries to deal with this situation by fixing minimum stocks (also known as "inventory points"), which are the quantity required to guarantee an uninterrupted production flow. The minimum stock should normally be large enough to cope with:

— delays in supplies (owing to weather conditions, etc.);
— unexpected increases in consumption (which may be the result of higher output, heavy wastage, etc.).

As regards the term "maximum stocks," this usually denotes a quantity equal to the minimum stock plus one normal delivery. (Where maximum stock levels have been fixed, they should, of course, not be exceeded without good reason.)

Important factors which must be considered in connection with the fixing of minimum stock levels are the following:

— "Lead time," *i.e.*, the time taken between the sending out of an order and the reception of goods in store;
— The most economic, or "optimum," quantity to order; in the case of own production this corresponds to "economic lot size" (see Production Planning—p. 51);
— Importance of the relative materials for production;
— Risk of the materials becoming obsolete by prolonged storage;
— Possible limitation of storage space;
— Purchasing order costs }
— Quantity rebates } (see Purchase Planning—p. 53).

In industries dealing with bulk commodities a number of additional factors, such as conditions and trends on raw material and freight markets and the availability or otherwise of fast transport for taking home quantities on call, must be watched continuously.

Enterprises depending on seasonal crops or catches which may be available for short periods only and whose quantity and/or quality are outside a company's control may need especially high minimum stocks to carry them through the whole off-season period.

Incidentally, it should be stressed that in order to be of real value, inventory levels must be tailor-made. The commonly used method of fixing minimum stock levels at a number of weeks' material consumption, on the basis of past experience, is best described as a "hit and miss method," its chief weakness being the reliance it places on "average" lead time periods. As lead time always is composed of quite a few unrelated factors, simultaneously occurring variations in several of the components are bound to jeopardize the whole calculation.

6. *Physical Storage Problems*

Problems of physical storage of inventories differ considerably according to various types of industries and their products. The following are more or less generally applicable considerations:

a. Storage places should be so arranged that, in the purely physical sense, the rule of "first in first out" can be applied as regards the consumption or sale of goods. This reduces the risk of stock becoming obsolete, deteriorating, etc.
b. Where possible, raw materials should be stored in lots so that an easy control can be achieved when the lot is finished.
c. Owing to restricted factory premises or lack of suitable storage buildings many companies are forced to keep part of their inven-

tories in rented outside storage places. Recent investigations in Scandinavia seem to confirm that a vast majority considers it much more expensive to store goods in hired premises than on own grounds, chiefly on account of increased handling and transport costs.

d. Where, owing to insufficiency of own storage space, minimum stocks (inventory points) have to be stored in outside premises, there should be permanent control that the stocks are regularly turned over so that no avoidable losses occur through deterioration. Prompt action should be taken by management if it transpires that the most economic quantities cannot be kept in stock due to lack of adequate storage space.

e. Where suitable suppliers are available in a factory's vicinity and where there is no risk of a general shortage of the relative materials, it may be worth while to have the suppliers keep sufficiently large stocks to guarantee that normal requirements can be met without delay. This system helps in achieving savings especially in the case of auxiliary materials and spare parts which, in the case of large plants, necessitate considerable investments of capital.

f. In order to save delivery time and handling costs, factory managements often have production materials delivered direct to user departments, where they are stored if not immediately consumed. This necessitates frequent physical checks of stocks held throughout the plant to ensure that quantities on hand are not getting excessive. The system is rather unsatisfactory from a control point of view and should be restricted to emergencies, except in the case of coal and similar supplies where it may be imperative to avoid subsequent handling costs.

g. Materials and products which have deteriorated or become obsolete should, if they cannot be sold promptly, be removed so that they do not take up storage space required for current articles.

h. In order to reduce storage costs and the number of articles held in stock, it often pays for organizations having several operating units in the same area to arrange for combined stores.

Finally, it should be stressed that it is practically impossible to maintain the necessary physical control over inventories without properly designed and maintained storage facilities. Unfortunately, even otherwise well organized concerns do not always seem to understand the importance of this problem.

*7. Inventory Accounting*

Different accounting methods should be used for the two main classes of items normally included under inventories, *viz.*: (a) materials essential to production and (b) auxiliary materials, factory stores, sundry supplies, etc. This problem is governed by Pareto's law of inequality, which implies that elaborate procedures and controls should not be applied to trivial items.

a. *Production materials, etc.*

The keeping of rather detailed stock accounts is desirable for materials used in actual production. Kardex, Viscard, Produc-Trol Board and punched cards are suitable recording systems, it being of no special significance which one is chosen as long as it suits the needs of the business, can be kept up to date with the least possible effort and enables management to obtain, at any moment, the following information:

— the total amount invested in inventories
— the actual investment as compared with the planned investment
— deviations from the original plan, revealed at the earliest possible moment
— individual stock levels (required both for production planning and for buying)
— production losses (such as scrap, waste and faulty batches)
— storage losses (such as deterioration, obsolescence, leakage and pilfering)
— product costs
— value of the stock held at the end of a period (required for balance sheet purposes)
— consumption during a given period (required for the earnings statement)

There should be the least possible time-lag between the physical movement of materials and the recording of that movement, so that book balances at all times give a reasonably true picture of the actual stock situation. This is not only a prerequisite for planning and re-ordering purposes but also makes it possible to establish stricter limits for stock levels than would otherwise be possible.

Under more complicated forms of production a code system may have to be introduced for use in connection with buying, storing, requisitioning and inventory accounting. Lists or catalogues, classifying materials and products, should be printed, and all departments

affected should be instructed to use throughout the same code number for the same article by way of identification.

This should, inter alia, ensure that only a minimum of different articles is kept in stock, and it has, in fact, occasionally been possible to reduce the number of articles held by the mere introduction of some kind of coding system, it becoming immediately apparent that considerably more varieties were carried than warranted by current production programs.

b. *Factory stores and sundry supplies*

In uncomplicated forms of production, the simplest way of accounting for the above classes of inventories is to debit purchases direct to consumption accounts.

To avoid simultaneous stocktaking of too many different items at balance sheet date or other period endings, some kind of "normal" stock, valued at standard cost or at latest purchase prices, should be carried in the records and from time to time be compared with physically established quantities. The above system is specially suitable for small-value articles, where detailed stock accounting would be a waste of time and money.

The following supplementary controls might be introduced as a protection against irregularities and to ensure proper re-ordering:

- — Simultaneously with the placing of an order a rough estimate is made as to the likely time at which the minimum stock will be reached. At this moment the stock actually on hand is ascertained and a new order placed or, maybe, postponed if the stock happens still to be sufficient.
- — When goods arrive and are taken into stock, an "order card" is physically placed in such a way as to mark the minimum stock; this card should be attached to the box, or any other type of container, on the opening of which a new order should normally be given.
- — Where practicable, stores and supplies should be kept separately from production materials and handed to workmen only against requisitions signed by foremen.

The over-all object of factory stores accounting is well summarized by B. C. Cranwell, who writes in his article on Stores Control and Administration: "It is far better to devise simple internal checks and continuous audit routines which stand a chance of re-

vealing waste, pilferage and other losses, than faithfully to adhere to accepted practices which take a good deal of time to execute (*e.g.* reconciliation of bin card and ledgers) and are largely unproductive processes."

## CONNECTION BETWEEN INVENTORY PLANNING AND OTHER COMPANY ACTIVITIES

### 1. *Exercise of the Planning Function*

In well organized modern companies coordination and integration of inventory planning with other activities is usually achieved at regularly recurring planning meetings, attended by representatives of the departments concerned. Other satisfactory ways of solving this problem exist, but the size of the inventory should, on principle, not be determined by the person or persons in physical charge of the stocks or stores (with the possible exception of auxiliary and operating materials of small value). This class of employee is bound to think mainly of safety considerations, such as the consequences of possible shortages, and can hardly be expected to appreciate the repercussions which wrongly planned inventory levels may have on other departments' activities and on the financial situation of the enterprise as a whole.

### 2. *Sales Forecasting*

As stated earlier, under general planning considerations, expectation of sale is the only valid reason for owning inventories. This clearly defines the important role of the sales forecast in all normal inventory planning: the holdings should fluctuate in accordance with future sales; if the latter are expected to go up, stocks should increase just enough to cover the expected rise, while the opposite would happen if a fall in sales were anticipated.

Unfortunately, a forecast, even if carefully computed on the basis of moving averages, seasonal trends and the like, can never be more than guesswork—admittedly of an advanced type. This makes it imperative to limit the element of uncertainty. Since the reliability of every type of budget is directly related to the time lapse between its preparation and the period covered, this interval should be as short as possible, the figures being constantly revised in the light of changing market conditions.

Only after a satisfactory system of sales forecasting has been devised can a company derive full benefit from production and/or buying programs.

3. *Production Planning*

The maintenance of a fairly regular flow of production, which tends to result in high stock levels, is bound to appeal to most factory managements as it does not give rise to difficult planning problems for machinery utilization, labor employment or internal transports.

Nevertheless, all sound production planning must be integrated with the sales forecast and, in addition, be flexible enough for alternative plans in case of unforeseen changes in the actual sales.

As regards the levels of stocks in course of production, this is a rather delicate matter depending on a factory's technical structure, its general standard of rationalization and the transit time of the individual products.

Adjustments to production stock levels, be they upwards or downwards, practically always necessitate changes in the arrangement of machines, working methods, factory organization and internal transports, apart from the fact that the possibility of bottlenecks or stops at later production stages has to be kept in mind.

a. *Transit time*

Transit time is the space of time which elapses between the issue of the production materials from store and the delivery of the finished products to stock or to customers, the idea being to make it as short as possible.

Transit time is normally made up of the following four components:

— Processing time
— Changeover time
— Transport time
— Waiting time

As investigations at a number of Scandinavian industries with varied types of production (long-series, short-series, mixed and single-product) show that waiting time accounts for as much as from 60% to 90% of total transit time, the most efficient method to shorten the latter would appear to lie in a reduction of waiting time. According to most modern experts the best way to achieve this is to arrange machinery according to products or groups of products rather than according to processes, as was usual in the past.

A Swedish author, G. Sandén, writes: "In the case of process arrangement there is for instance one department for lathe work.

one for drilling and so on, with a different foreman for each department. Where an item goes through a series of different processing operations, in every new department a new person must take a fresh initiative, go into the problem and prepare the work. Bearing in mind the 'starting resistance' normally found in every human being, there are bound to arise waiting periods, which correspondingly increase the transit time. An arrangement according to products, however, brings together under one foreman a series of connected operations even though they may be carried out on different kinds of machine. Thus one person becomes responsible for a consecutive series of processes which he has far better opportunities to coordinate in order to reduce transit time.

Unfortunately, a serious drawback of all methods recommended to achieve shorter transit time is that they give rise to substantial costs and require capital expenditure outlays before they can be put into practice. The capital which ultimately may be released by reducing the level of work in progress is as often as not required for expenditure needed to bring about those improvements, with a resultant switch of funds from current to fixed assets. Whether this is an advantage or not cannot be judged as a general proposition but must be decided in each individual case, having due regard to a company's general conditions and circumstances."

b. *Changeover costs*

Another important factor in the planning of work in process levels is changeover costs, *i.e.* the costs connected with the starting or the stopping of the production of a certain article.

When a machine operator has finished one job, he may get a job order for the production of quite a different article and his machine will, consequently, have to be reset. As resetting of a complicated machine calls for considerable skill, many factories keep experts solely engaged on that job. After a machine has been readjusted, it is first given a trial run, in the course of which a certain quantity of material is consumed. An additional cost factor is the unproductive time of the ordinary machine operator, who may have to stand idle while the changeover engineer does his work.

The heavy changeover costs confront those responsible for production planning with an awkward dilemma:—if the processed quantity is too small, changeover costs become unduly burdensome; if it is too large, inventory-carrying costs are rising.

A great deal has been written about the problem of "economic lot size," which means how to arrive at the economically ideal number of units in a manufacturing order.

Within the scope of these notes it is not possible to deal with all the relative theories and equations, but for the sake of completeness we might mention "Camp's formula," *viz.*:

$$Q = \sqrt{\frac{2\,SO}{KC}}$$

Q = quantity
S = total estimated demand
O = cost of placing production or purchasing order into process
K = inventory-carrying cost
C = unit cost of item

Edgar L. Andlauer, from whose article on Inventory Management the above details are taken, adds that "all that is required for solution of the formula is three multiplications, one division and one square root; estimated time for the calculation less than one minute."

4. *Purchase Planning*

After a general purchase plan has been drawn up in agreement with sales forecasts and production programs, those responsible for the actual buying must ensure that the right goods at the right price are available at the right place at the right time.

In the majority of modern companies all purchases are handled by a central buying department. This is desirable from the control point of view because it guarantees that the purchasing function is concentrated in the hands of trained buyers who have the necessary qualifications for obtaining the most advantageous terms as well as goods of the right quality. In the case of large groups with a number of factories it often pays to act jointly in order to qualify for specially favorable conditions, which may only be accorded to customers with considerable turnover.

One of the main objects of purchase planning in relation to inventory management is the ascertainment of the most economic, or "optimum," ordering quantities. In order to find out how much of an article shall be bought how often, the following factors must be balanced against each other:

— Lead time
— Cost of placing orders
— Rebates obtainable for large quantity orders
— Cost of owning inventories

Lead time and the cost of owning inventories have been dealt with earlier in these notes.

As suppliers' reliability plays an important part in purchase planning, it might be interesting to note that a simple and efficient means of controlling this consists in a continuous record (in the form of a loose leaf register) showing for all major groups of goods, classified as to suppliers, details of ordered and delivered quantities, together with prices and promised and actual delivery dates. This information should enable the buyers to calculate lead time as accurately as possible.

Incidentally, the record in question can also be used to convince suppliers who repeatedly do not keep promised delivery dates that they have to improve their service—or risk receiving no further orders.

As regards the cost of placing orders, this varies considerably from one business to another, depending on differences in organization and the like. The nature and the value of the goods ordered are important factors as far as the costs of the buying, receiving and inspection departments are concerned, whereas a share in the clerical costs of the various departments handling invoices, making payments, etc., is incidental to all orders, irrespective of the purchased articles' nature or value.

Experience has shown that the simplest possible order in an organization of reasonable size costs about 10 shillings, while average orders for production materials, etc., cost about as much as £4. each. Furthermore, it is a fact that small quantities carry high order costs, the average cost for an order worth £10., with normal handling time, amounting to as much as 55% of the order's value. (Theoretically, the cost for an order worth £1000. should only be 0.55% of the order's value, but this is hardly ever true in actual practice.)

Needless to add, small orders should not be allowed to take up much of the buying department's time, as price reductions obtained as the result of lengthy bargaining may be more than offset by increased handling costs of the order.

From the foregoing it should be obvious that each well organized company must try to ascertain its order costs, at least for the more important groups of materials.

All that need be said here about rebates obtainable on large quantity orders is that buyers should beware of the temptation of ordering larger quantities than are justified by sales forecasts and production programs. Otherwise the resulting "profits" may, as likely as not, be offset by an increase in inventory-carrying costs.

Finally, it should be mentioned that the problem of determining the right quantities to order, sometimes referred to as the "minimum problem," can be solved mathematically, when it is generally found that:

- — relatively unimportant articles must be ordered in large quantities;
- — material which is used regularly and in large quantities must be ordered more often;
- — the higher the costs of holding stocks, especially where obsolescence and deterioration are important factors, the more often one should order.

## CONTROL OF INVENTORY INVESTMENTS

Even in the case of a satisfactorily working system for the planning of inventory investments there is a need for continuous control to ensure that:

- — the approved stock levels are adhered to
- — inventory points are adjusted without delay, should changing conditions make this necessary

The control and supervision are usually entrusted to a planning department which, at the same time, should be responsible that there is neither excessive buying and/or over-production, nor risks of production stops for lack of materials. In many companies the planning department also keeps an eye on obsolescent and damaged materials and products and, where necessary, takes steps for their sale or disposal.

To achieve the above objects, the responsible staff will have to use some or all of the following control measures:

- — keep the approved stock levels under constant review in the light of changing circumstances and the concern's general policy
- — assess the effect of price changes occurring after the levels were fixed
- — investigate material differences between approved stock levels and quantities actually ascertained during physical stocktaking
- — investigate the reasons for unduly low rates of turnover of production materials or finished goods

Those responsible for the control should devote but little time to the large number of small-value items and concentrate instead on the few

articles which account for the bulk of the inventories (see Speed of Turnover—p. 44).

In accordance with modern practice, any resulting reports to management should be restricted to *material* deviations from established standards. Careful investigation is, however, indicated where the actual quantities held cannot be brought down to the predetermined levels as the causes may be one or several of the following:

— Incorrectly established standard costs
— Unreported scrap or wastage in production
— Continued pilferage
— Materials held which are treated as good in the records but can no longer be used for production as the result of deterioration or obsolescence

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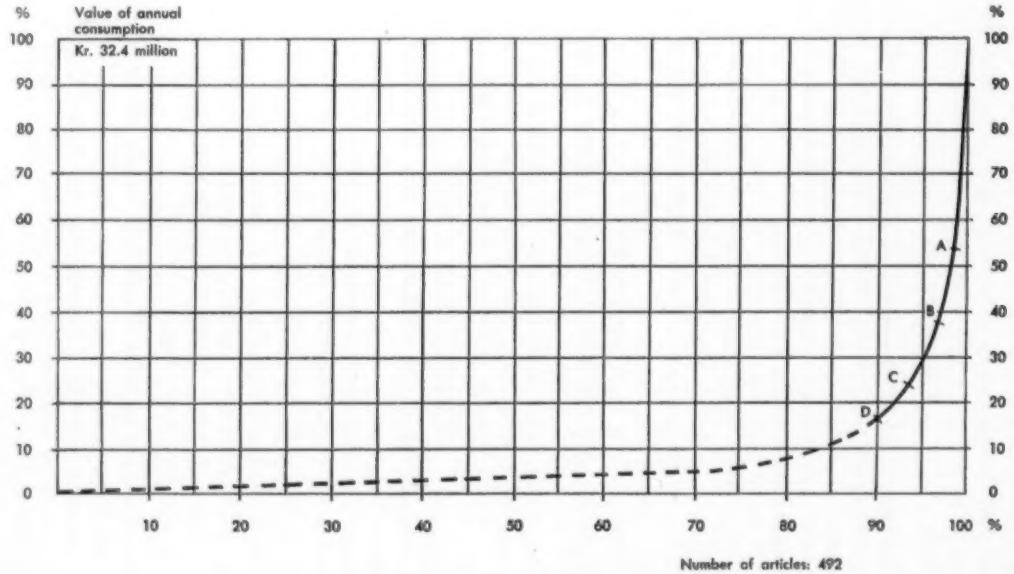
EXHIBIT I

DISTRIBUTION CURVE




The lowest part of the curve is a broken line to indicate that it is not accurately drawn, this being unnecessary in the present case.

# THE ROUND TABLE

Edited by ROBERT C. BAIRD

Belonging to a professional association affords many benefits. None is of more value than the opportunity to exchange ideas with fellow members. The Round Table provides a vehicle for just such exchanges, on an international basis.

Contributions should be factual and illustrate constructive service to management on the part of internal auditors. Those submitted by members of THE INSTITUTE will, on publication, be eligible for The Round Table Annual Award to the winner's chapter. The criteria for selecting the winning article are practical value and originality.

Send your contributions direct or through your Chapter to:

The Round Table
The Institute of Internal Auditors
120 Wall Street
New York 5, N. Y.

Contributors' names will not be published without the author's permission.

* * *

## THE CASE OF THE UNWANTED CHRISTMAS CARD

Since the company mail boy had to go to the post office anyway, he had always been willing to mail any personal mail which employees may have brought to work with them. This seemed only fair because our office is located away from the main business district.

That is the way it started. However, the company now has many thousands of employees and personal mail was getting to be a big problem, particularly at Christmas time; the Mail Department just didn't want those Christmas cards any more. Rather than ruffle any employee's feelings, nothing had ever been done about it.

During our audit of the Mail Department, we questioned why we did not have mail boxes at the employee entrances so that they could deposit letters as they came to work. The answer was quite emphatic: the Postal Department would not put mail boxes in those locations. So, we asked the Postmaster. He was very happy to co-operate.

A bulletin was sent to all employees joyfully informing them that we had made arrangements to have postal boxes placed at the entrances in order to provide better mail service for them. Now the Mail Department gets very few Christmas cards, or, for that matter, very little personal mail.

Twin Cities Chapter

* * *

## LOSSES IN SCRAP SALES

In cooperation with our Security Department we have been investigating two sources of loss involving on the one hand, the method of segregating scrap, and on the other, the variance in tare weights of one dealer's same trailer.

1. We have taken pictures of scrap and apparently usable material recovered from dumps to which we haul trash. These items had been placed at the bottom of rubbish containers in the plant. Our scrap barrels have different colored markings for various categories as well as attached cardboard placards naming the categories. The trouble was that in some cases the placards indicated a type of scrap basically different from color designations. Corrective action has now been taken. We believe that part of the cause of scrap being put into trash barrels was uncertainty on the part of operating personnel as to the proper scrap barrel. Knowing that the latter were checked frequently they took the easy way out.

2. The second puzzler was that the tare weights for a certain scrap dealer's trailer had shown, under the same weather conditions, variances up to 2,000 pounds. These weights, registered by printomatic scale, varied widely for the one dealer only. We are investigating the possibility that, in some manner, the zero point of the scale could be set so that the weight would be overstated when weighing in the empty trailer.

St. Louis Chapter

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## AN UNATTAINABLE MINIMUM

The contract rate charged by a carrier for the return of empty shipping containers from a customer's location to the plant was 8c per 100 pounds subject to a minimum truckload weight of 20,000 pounds per shipment. Accordingly, the minimum charge for each shipment was $16.00.

Observations disclosed that the carrier's trucks were only equipped to carry a maximum of seventy-two empty containers and that, at an approxi-

mate weight of 100 pounds for each container, the maximum weight per shipment was 7,200 pounds. A review of related billings from the carrier indicated that the weight of inbound shipments ranged from 1,500 to 7,200 pounds and that the minimum charge of $16.00 was assessed for each shipment. From this, it was clear that the contract rate paid the carrier for hauling empty containers was excessive.

The matter was referred to the Traffic Department for review. Their subsequent negotiation resulted in a reduction in the minimum truckload weight to 10,000 pounds per shipment and a reduction of the contract rate to 7½c per 100 pounds. Based on these changes, a minimum charge of $7.50 per shipment was established as compared to the former minimum of $16.00. Potential annual savings were estimated to be approximately $6,000.00.

Cleveland Chapter

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## EXCESS WEIGHT OF PACKING MATERIALS

An investigation into the cost of packing materials for oil cake revealed that the weight of the containers in one oil mill was 800 grams each and in another oil mill 900 grams. When this was brought to the attention of management they agreed that a pack of 800 grams was sufficient. The saving in material alone is $5,000 annually, and there is also a not inconsiderable saving in freight. There was one other important result of this enquiry: the packs for oil cakes are now standardized, which in itself will result in further economies.

Scandinavian Chapter

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## LOSS ON TRANSPORTATION CHARGED ON OUTGOING SHIPMENTS

The amount of transportation and insurance to be charged to the customer on outgoing parcel post and express shipments was supposed to be entered on the salescheck at the time of sale. The amount was computed from elaborate manuals and rate charts on hand in the selling departments. The parcel was then sent to the shipping room, weighed, and the actual amount of postage determined and affixed.

During a recent audit sampling, we compared the amount of postage and insurance charged to the customer with the amount actually expended and found that the store was losing revenue of about $75,000 per year on a relatively small volume of shipments.

Investigation revealed that the discrepancy was caused partly by the fact that, during busy periods, salesclerks (on commission) simply refused to spend what they considered to be excessive time in computing transportation charges. Thus, at times, no transportation was charged.

Another factor was that the salesclerks were not fully conversant with parcel post restrictions. Consequently, in many cases where transportation had been charged on a parcel post basis, the shipment actually had to be sent by express at a substantial increase in cost.

Our findings resulted in the installation of scales in each department with direct dollar value readings from simplified shipping cost charts based on average rates. This action, which made the determination of shipping costs an almost instantaneous process, plus a thorough retraining program emphasizing the importance of transportation costs, resulted in reducing the annual loss from $75,000 to $14,000 with the latter amount being considered to be about the irreducible minimum.

Chicago Chapter

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## THE CUSTOMER WAS RIGHT

During a visitation to a branch office by the Credit Supervisor, a customer came in and requested permission to purchase other items on an installment basis, his account having previously been closed. The Credit Supervisor, upon reviewing the closed account, casually commented that the record showed regular monthly payments with the exception of the final one, where a portion of the amount due was received on schedule and the balance about two weeks later. The customer denied this.

Under questioning, the branch Credit Manager admitted diverting a portion of the payment for his personal use. Advised that a full investigation would be made of all accounts he then admitted two other misappropriations.

A 100% verification of accounts receivable followed. Full restitution was made and the Credit Manager dismissed.

This case illustrates the audit value of visiting supervisors personally looking into complaints and enquiries which come to their attention, rather than "passing the buck" to the local management.

Los Angeles Chapter

## TOO MANY CARPENTERS

It was noted during a review of charge tickets for an account with a poor payment record that ticket No. X was signed for by man No. 1, presumably a carpenter getting materials for our customer. Ticket No. Y was signed for by another man; ticket No. Z by still another, and so on over a period of a month.

We knew that our customers may have one of several carpenters do work for them, but usually they stay with the same one for at least a month. If they have another during the month it would normally indicate a job of some size. However, the account in question was not for enough material to supply more than a one-man job.

An audit was immediately made. It confirmed what we had suspected: the charge-outs were forgeries used to cover materials misappropriated by the person who recorded the alleged sales.

We now have a new manager and a fidelity loss claim of over $1,500; and it all started over a little inconsistency observed in reviewing sales tickets on a slow account.

Puget Sound Chapter

* * *

## LOOK FOR THE GOOD AS WELL AS THE BAD

The auditor's main concern is with problem areas, although a good look at outstanding accomplishments can sometimes be just as valuable.

In an audit of production control functions at one plant, we found that an outstanding job had been done in the movement of materials and parts in the factory work areas. This included not only improved methods but also the design of special handling equipment. Savings were substantial both in handling costs and in reduction of damage to parts.

Although the auditors had not previously criticized the material handling methods in other parts of the company, it was decided to bring these improvements to the attention of other plant managers. The results were that the same improvements were subsequently made in four additional plants with substantial savings in each.

San Diego Chapter

# READERS' PROBLEM CLINIC

Edited by FREDERIC E. MINTS

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## PRELIMINARY REVIEWS OF SYSTEMS AND PROCEDURES

*Q.* Does the auditor compromise his independence by reviewing systems and procedures before they are made effective?

*A.* We do not think so. A preliminary review of proposed procedures by the auditor prior to actual installations may save time and effort by pointing out to the persons developing the system any weak spots in the controls. Such a review of a proposed procedure will not necessarily disclose all of its possible faults, as some of the effects may not be apparent until it is actually in operation. Nevertheless, we believe the potential gains make it worthwhile.

For example, members whose companies are converting to EDP equipment seem to be generally agreed that the auditor must review these systems before detailed programs are written in order to ensure that adequate provision is made for future audit trails and built-in controls over accuracy. Otherwise the cost of later changes may be prohibitive. It should, of course, be understood by all concerned that the auditor's failure to find obvious deficiencies in a preliminary review prior to installation does not bar him from reporting any deficiencies found in a later detailed examination of the operations.

THE INSTITUTE's official position, as set forth in the Statement of Responsibilities, is that "—internal auditors should not develop and install procedures—." However, the review of procedures prepared by others is a basic part of the internal auditor's responsibility for the soundness and adequacy of necessary controls. So long as the auditor confines himself to appraising procedures developed by others (and perhaps making suggestions for removing deficiencies) we do not believe that his independence should be affected by the timing of the review.

## GOVERNMENT AGENCY REQUESTS FOR AUDIT REPORTS

*Q.* Our company is engaged in some defense business. We have recently been requested by the Government auditors to furnish them with copies of our internal audit reports—not only those concerned with the costs of the particular contracts involved, but also reports covering the general efficacy of our system of internal control. Can you tell me whether such requests are generally made of and acceded to by companies engaged in defense business?

*A.* Without polling our entire membership it is difficult to give an authoritative reply. However, a similar question was raised in the Aircraft-Missiles Industry meeting at the Milwaukee conference, and a poll there indicated that the majority followed the practice of supplying Government auditors with copies of internal audit reports and/or permitting them to review the reports and the working papers in the company's offices. Generally reports dealing with nonmilitary operations and with activities such as budgeting or pricing (which might give the Armed Services an unfair advantage in negotiations) were withheld. The principal argument for furnishing reports dealing with the reliability of various control procedures seems to be that this will reduce the work which would otherwise need to be done by the Government auditors and hence result in lower costs to the taxpayer.

## AUDITING GROUP INSURANCE ACTIVITIES

*Q.* How extensively should the internal auditor review his company's administration of group insurance claims?

*A.* Since group insurance premiums are directly related to the amount of claims paid, those responsible for group insurance activities should ensure that claims paid are legitimate, in compliance with policy provisions, and accurate. Also, from an employee relation standpoint, it is important that claims be paid in a timely manner and that employees be given necessary assistance on group insurance matters.

The internal auditor can effectively review these matters for company management. It would seem that his examination should be extensive enough to determine whether adequate procedures have been provided and followed in such a manner as to ensure:

1. That eligibility records for employees covered under the group insurance plan are being maintained in an accurate and current condition
2. That benefit payments are made only to eligible employees, are properly supported by claims and other documents, are in conformance with applicable policy provisions, and are processed in a timely manner
3. That adequate information and assistance on group insurance matters is provided to employees

In addition, premium statements should be tested for arithmetical accuracy and to ensure that the rates used are in accordance with rates stipulated in the group insurance policies.

# STUDENT'S DEPARTMENT

Edited by A. J. PENZ

## SALESMANSHIP

Most people will agree that there is a need for a certain amount of salesmanship in almost any field of endeavor. And, if there is one area where this is especially true, it is in the field of internal auditing. This is not to say that all internal auditors lack salesmanship qualities or have been intentionally negligent in stepping up to their responsibilities in this connection. On the other hand, it is frequently apparent that internal auditors have not been doing the selling job they are capable of. Based on the experiences of many active internal auditors, continued attention to this job of service salesmanship is requisite to satisfactory management acceptance.

Obviously, the internal auditing activity is not expected to include an active sales force, but it is acknowledged that the internal auditors' services must be sold to responsible supervision within the company organization. This is not always an easy task in as much as the benefits derived from these services are oftentimes somewhat intangible. However, a job well done by the auditor in one area of the company generally makes a convert of the auditee; this is unquestionably the best type of salesmanship for successful entree to other departments.

Frequently, the auditor can demonstrate his worth to a department head by suggesting alternate timesaving methods observed in other areas. Such suggestions lead to improved operating performance, a common goal of the auditor and the auditee. This is the audit salesmanship approach in its most desirable form, and the results can be particularly satisfying to the auditor who will apply himself in the right direction.

# THE OWNER'S AUDIT OF COST-PLUS CONSTRUCTION CONTRACTS

By ARTHUR G. BEERS

Chief Auditor, Southern Peru Copper Corporation

*The audit of cost-plus construction contracts generally creates special problems for the internal auditor. In the following article the author attempts to point out some of the pitfalls to be avoided based on his experience with this type of business activity in Latin America.*

IN this era of tremendous domestic and foreign industrial expansion a great many of the projects involved have entailed financing of such magnitude, or risks of such intangible nature, that many corporations and governments have been obliged to engage in construction contracting of a cost-plus nature. Under such circumstances the owner has had to evolve adequate protection of his interests through a staff of inspecting engineers and auditors who, on the one hand, verify technical adherence to agreed specifications, and on the other hand, police financial aspects in accordance with contract terms and intent. The auditing of extensive construction activity oft times requires a scrapping of commonly accepted principles and a certain mental attitude that will adapt itself to ever-changing conditions. The senior auditor finds himself carrying the department around in his spare back pocket.

Although it rarely happens, the auditor should be part of the project team right from the planning stage. He should be thoroughly acquainted with a breakdown of facilities to be built, the labor, material, and equipment estimates, and the material coding and ordering systems involved. If staff or planning committees exist, he should try to become an unobtrusive part of them—it becomes invaluable in scheduling his control activities.

If the job is large and spread out over a considerable area, it would probably be wise to split the audit functions into:

1. General Accounting
2. Cost Accounting
3. Field Audit

with defined responsibilities as follows:

*General Accounting.* Enforce contract provisions in relation to extent and quality of accounting. Verify bonus payments, fee schedules, and cash flow needs from the owner. Test check cash and bank procedures and review general payments for adherence to policy instructions. A semi-detailed review of general expenditures becomes imperative when one considers the nature of a cost-plus contract, the varied payments, and the transient nature of the employees.

*Cost Accounting.* If each facility is budget controlled by the original labor or material estimate, the auditor can draw indicative conclusions from over- or under-runs and investigate accordingly. Faith in the indicator is rewarded only by accurately compiled and posted information. Labor distribution can be left to the Field Auditor and periodic reference to construction progress reports. Material distribution is somewhat more complicated and should be based, in the main, on material take-off sheets common to the trade. The auditor need not become involved in analysis of technical specification sheets or interpretations of supporting blue-prints. As the invoices for readily identifiable equipment are paid, check them off the control sheets. As bulk materials such as cement, reinforcing steel, paint, brick, lumber, etc., are expended, record them to summaries of the control sheets. Stick to strategic or heavy-cost items. Many errors will undoubtedly crop up through this control point, *i.e.,* erroneous ordering, maldistribution, field plan changes, replacement due to shipping or local damage not reported for claim, and so on. Do not be small in your thinking and work out waste tolerance allowances with the engineering inspectors. The latter department should substantiate all your exceptions before you pass them on to higher authority.

In an effort to reduce clerical expense some construction companies advocate the use of cost engineers in distributing bulk material costs at the time of purchase order preparation. Thus, theoretically, material is costed to the various facilities directly from the invoice, and warehouse control is cut to a nominal caretaker status. If cost engineering breaks down, and fails to adhere to strict material budgets, such a system can prove disastrous. On large projects the bulk materials tend to "float" as certain areas are emphasized or de-emphasized, unreported field changes will confuse outcomes, and losses can be readily covered by spreading replacement purchases over a great many open accounts. We also note that warehouses tend to loss their proprietary interest over materials that have already been "charged out." The bulk distribution methods may work on a fixed amount contract, but we would caution against them on a cost-plus basis. If the auditor is saddled with such a situation, considerable time should be spent

with cost engineering personnel. Watch their attitudes and methods very closely.

Outside natural administrative overhead accounts we have experienced several classes of materials and services that should, for the sake of accuracy and convenience, be held in suspense pending distribution over all completed facilities.

1. *Small Tools*: initial withdrawals are heavy and ought to be equitably spread among all facilities.
2. *Form Lumber*: is usually used on a continuous basis.
3. *Equipment Operation*: in this field you will generally find that contractor's endeavor to keep extensive operational records will result in nothing but extra clerical costs for the owner. All fuel, tubes, parts, repairs, etc., would be better charged to an overhead account and distributed later, to appropriate accounts, on a labor or original estimate basis. Even where field "hour use" records are kept we rarely find them reliable for costing purposes, especially where down time and increased age-repair factors appear. Equipment operating labor should be distributed in the same manner as other field labor.
4. *Service Shops*: The age-old work order system sounds just the thing for this sort of operation (sheet metal, garages, pipe shops, etc.) but I have yet to see one work efficiently when dealing with highly individualistic transient personnel, or without incurring excessive clerical expense. Here, again, it is simpler to accumulate in suspense and finally distribute on the basis of labor, to applicable accounts.
5. *Ocean freight and like items*: If the project is located where such items are incurred, the task of distributing them (including customs, port charges, etc.) would be formidable. Hold in suspense and distribute on the basis of material values.

Fabrication or manufacturing units such as concrete block and mix plants, aggregate installations, etc., should be analysed to ascertain a unit cost of production and their products subsequently charged to individual jobs on that basis.

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*Field Audit.* To minimize personnel, and provide the maximum return on audit expenditures, insist on establishing sound field accounting measures which contain, as far as possible, built-in control measures. The Field Auditor spends a good deal of his time observing and checking the function of these measures.

All the usual methods of verifying the accuracy of payrolls should be used, but I place a like faith in seeing that personnel and payroll functions are divorced and that payroll clerks are placed on a rotating basis.

Timekeeping facilities on a construction job must remain adaptable to the most adverse conditions. Portable time shacks and a simple brass check system seem to satisfy both operator and accountant. Anything more complicated appears to bog down in its own newness. Stress the rotation of time-checkers in the field and on the brass check gates. Standard shifts are easily controlled with adequate discipline, but overtime is a prize source of leakage. Bear down on this point in a consistent manner and don't be afraid to publicize your intentions. The more hullabaloo the better. After a few unfortunate incidents the foremen will take considerably more interest in their responsibilities.

Timekeeping only assures the presence of a body in a certain area. Its effectiveness on the job is the sole responsibility of superintendence. As an aid to the latter function the Field Auditor should, in the normal course of his rounds, make observations as to idleness, waste of materials, etc., and pass it on to the appropriate superintendent without comment. The fault is usually corrected without a great deal of fanfare and disturbing audit reports to management.

In construction it is essential that material control procedures have strength. It may be unpopular, but you should make every effort to provide the supply organization with adequate backing. Set quantities of material are usually purchased for specific purposes. If these are not on hand when required by the construction schedule, the time losses involved in their replacement can be out of all proportion to the original excuse for misappropriation. Construction foremen can be the world's worst pack-rats and, given half an opportunity, will create their own area warehouses, especially in small tools and general stock items. If they are made to learn early that "moonlight" requisitions will not be tolerated, and that the material organization is there for a good purpose, then a great deal of time loss and eventual unwelcome surplus might be avoided. Watch receiving and dispatching activities very closely—they have a habit of breaking down when confronted by strong, negative personalities—and be tolerant about

pricing and posting standards as long as the incidence of error remains compatible with a temporary and generally overworked organization.

A few miscellaneous areas of marked tribulation might well be touched upon. If a job is located in a foreign country it will behoove the auditor to be familiar with local labor, tax, and commercial codes. Have these translated, abstracted, and placed in manuals for ready reference. Take nothing for hearsay or for granted, and if in doubt, obtain a firm ruling from your company's legal department. The auditor assigned to general accounting should keep a sharp eye on exchange rates and their possible manipulation.

All tools should be stamped or burned with identifying marks and a check system placed on the tool cribs. Where a great many vehicles are used, it would be well to have engines and tires branded. A favorite side-income producer is to run vehicles off the job site and exchange new items for old. Accent your physical checks on automotive spare parts.

The operation of overhead functions such as commissaries, mess halls, food warehouses, clubs, hospitals, etc., can form a goodly part of the over-all expenditure. With limited personnel (it may as well be recognized, you will never have sufficient manpower) these areas are extremely difficult to control. Analyse the operations for what they are and try to use expenditure to personnel serviced as an audit yardstick. Meal cost means nothing unless the meal count is accurate, and accommodation costs mean nothing without a true employment picture. As your project passes its peak it is important to see that heavy overhead expenditures decrease in proportion to construction activity. Cost-plus contracts are notorious breeders of loose administrative practices and reservoirs of idle manpower.

In this type of work the perambulating auditor is far ahead of his counterpart who hopes to control from the comforts of an armchair.

# THE CONSTRUCTIVE SERVICES OF THE INTERNAL AUDITOR*

By LAWRENCE C. PUCHALSKI
Haskins and Sells

*Providing constructive assistance to management in the discharge of its stewardship is one of the primary objectives of successful internal auditing. In the following article the author outlines some of the salient points of rendering such service and discusses briefly the more important aspects leading to a proper understanding of the internal auditor's broad responsibilities to management.*

INTERNAL AUDITING may be defined as an activity organized by management to assure itself of proper adherence to Company procedures and policies, and to secure the benefits of a systematic verification and constructive analysis of the accounting and financial aspects of Company operations.

Internal Auditing involves a constructive appraisal of existing procedures as a basis for determining possible betterment or improvement. Verification by the internal auditing group gives accounting facts greater validity, and by an independent analysis and interpretation of these data management is provided with a sounder basis for carrying on its activities of direction and control. Although the ultimate objectives of the accounting department and the internal auditing group are the same, the means of furthering these objectives are somewhat different. The basic difference lies in the status of the internal audit group as an independent management tool.

Subject to the limitations of overlapping activities and the various meanings of the terms, services rendered by the internal auditor may be classified as follows:

1. Determination of compliance
2. Conservation of resources
3. Verification and analysis of data
4. Appraisal of procedures and allied matters
5. Personnel training as an aid to management development
6. Miscellaneous services

* This paper won the first place award in the 1960 essay competition conducted among qualified auditing students at University of Detroit. Sponsored by The Detroit Chapter, INSTITUTE OF INTERNAL AUDITORS.

1. The term compliance in its accepted sense carries with it the meaning that there is a requirement prescribed by proper authority to designate the desired action.

The significance of procedural compliance is directly related to the size of the organization. Size in this case relates particularly to complexity of operations, type of activities, values involved, number of persons employed, and the scope of geographical coverage. These factors are often responsible for the separation of management from actual operations. Under such circumstances, management must establish uniform policies and procedures to be followed by all activities and must also provide the control to assure that these policies are adhered to. One of the primary reasons for the creation of an internal auditing activity has been this need for an independent appraisal of compliance which constitutes one of the more important services performed by the audit group.

Generally speaking, the internal auditing group does not exercise line authority over either accounting or operating departments because it is a staff function. The group does not have the authority to initiate disciplinary action in cases of lack of compliance, and if any changes are recommended, orders for such changes have to go through the proper channels. The responsibility of the internal auditing group is limited to reporting lack of compliance to those who exercise line authority.

The internal auditing group must ascertain that the accounting system operates satisfactorily, for the reliability of data produced through the accounting records largely rests on compliance with established company accounting policies.

Today, compliance with governmental regulations has also reached important proportions. The maze of requirements that have developed through application of the various tax laws and other legislative enactments involve the preparation of many reports and greatly affect the controls maintained over day-to-day transactions. Following these governmental requirements in an acceptable manner constitutes one of the greatest compliance burdens that the modern business enterprise has ever been called upon to face. Consequently, the responsibilities of the internal auditing group have correspondingly increased relative to these matters. It is incumbent that this group be sufficiently familiar with the regulations on

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renegotiation, price control, wage and salary stabilization, allocation of materials, and cost-plus Government contracts so that the chief accounting officer will be informed of any procedural deficiencies and corrective measures may be taken promptly.

2. The term "conservation of resources" has wide scope. With regard to assets it means assurance that all assets are properly cared for and are protected against unauthorized disposition. It also includes assurance that asset acquisitions of the company are properly recorded. In the case of liabilities, it means that no obligations have been created without recognized authorization, and that such obligations are consistent with and necessary to the successful conduct of Company business.

The resources of a company are protected and conserved through obtaining compliance with company practices and procedures. However, there are situations when the alertness and deeper insight of the internal auditor must be depended upon to recognize the need for providing further safeguards over company interests.

The internal auditing group has probably attained its greatest recognition in connection with the detection of fraud and dishonesty. Although auditing effort is not a complete insurance against such undesirable occurrences, when properly administered, the auditing activity is a deterrent to losses from fraud or dishonesty. Although this service aspect is of considerable importance, the prime objective of auditing is not fraud control.

For the most part internal auditing emphasis should be directed toward fraud prevention rather than the detection of fraud. This approach recognizes that, if the system routines and procedures are right and are being properly performed, the detection of fraud should be reasonably certain. The detection of specific instances of dishonesty should likewise be used constructively as clues to weaknesses in the system. This requires careful consideration of the factors that permitted the fraudulent activity to be carried on and determination of a proper course of action to prevent a recurrence.

The internal auditor can be of help in safeguarding company interests in transactions with outside parties. With respect to sales, this assistance would involve the assurance of proper billing practices, correctness of merchandise shipped and so forth. As for purchasing there are opportunities in connection with price negotiations for goods and services and the determination that contract terms are adhered to. Such areas represent a potential source for the extension of a valuable service by the alert internal auditor.

3. Internal auditing activities are generally directed toward vouching the validity of data produced by the regular accounting processes. The size of many organizations has made the verification of accounting details by the outside auditor uneconomical, and this work has been assumed to a large extent by the internal auditor. Consequently, the internal auditing department carries on a program of continuous verification to assure management of the validity of current reports and to impart a feeling of reliability to data which might otherwise be subject to question.

The verification of accounting data involves analysis, and the development of supplementary information is a normal by-product of the verification. By his intimate knowledge of company practices and problems the auditor is in an advantageous position to appraise company operations and to present to management the kind of information executives need to solve current problems.

4. The act of appraisal generally implies the exercise of judgment as to the efficiency or adequacy of a given rule or procedure. The internal auditor must have a knowledge of the procedure being appraised and an understanding of its purpose and objective. Appraisal also includes the introduction of new constructive suggestions, different ideas, revisions of the procedures, or the like.

A basic aid to proper internal auditing is a knowledge of the accounting system and an understanding of accounting controls. Because the internal auditor is in constant contact with the accounting system, he is in a position to evaluate forms or procedures and to detect possible areas of improvement.

Management needs a constructive appraisal activity with an objective viewpoint. The constant improvement of existing techniques is a safeguard against loss of efficiency and at the same time is a means of utilizing new ideas and methods being developed in the rapidly changing field of accountancy and internal control.

The frequent changes in the nature of a company's operations are never-ending problems to accounting systems and procedures. The matter of adaptability to cover new changes often involves considerable system revision. To aid in the development of a satisfactory solution in such cases, the internal audit group can often act as an advisory body because it is especially qualified to assist in the formulation of desirable revisions to the accounting system.

Opportunities for constructive service on the part of the internal auditor in the appraisal of other matters related to internal control are many. With

respect to personnel, the internal auditor has the opportunity to evaluate capabilities of employees and supervision, the manner in which these employees assume their respective responsibilities, and the various aspects of their activities which bear on the welfare of the company. This appraisal of individuals leads to an analysis of the relationships between intercompany groups. When a department does not function properly, other activities are hindered and company operations are impeded. Here the internal auditor may step in and make recommendations to improve the situation.

The internal auditor through his activities comes into contact with all parts of the organization. In a decentralized operation these parts are separated and in many cases scattered over wide geographical areas. The internal auditor thus has the opportunity to observe new ideas and practices as developed by the various units. Through his efforts such ideas as have real merit are often transplanted to other parts of the organization. This distribution of new ideas is not limited to accounting matters, but may be extended to operating areas as well, and the entire process constitutes a most beneficial service to the organization as a whole.

5. The internal auditing group is sometimes called upon to play an important part in training employees—particularly those engaged in the accounting activities. The internal auditor is in a position to explain and interpret the current practices to the employees. It is also customary that the internal auditing activity serve as a training ground for future supervisory employees.

Internal auditing has a psychological effect on personnel efficiency. The knowledge on the part of the employees that their work is to be reviewed—even though in a general and test-check manner—prompts them to do their work more efficiently, and to take pride in avoiding criticism by the internal auditor. In this manner the auditor can become the motivating force that produces an all-around efficient method of operation.

6. The extent of the internal auditor's regular activities and his many special management assignments provides an excellent training background of exceedingly wide scope. In the course of his audits he acquires an extensive knowledge of company operations, policies, practices, and problems. Also, in his contacts with management the internal auditor becomes accustomed to thinking in managerial terms. It therefore follows that as management replenishes or expands staff requirements, the internal auditing group is called upon to supply the necessary manpower.

The internal auditing group, through its normal function plus the direct service it gives to the outside auditor in the way of working papers, reports and oral conferences, enables the outside auditor to consider restricting the scope of his examination and to use a broader approach. Because the outside auditor is able to reduce the extent of his detailed review, he is able to devote more time to constructive analysis, thus increasing the value of the total auditing effort.

In the future, we can look for continued growth in the importance of the internal auditor. With his knowledge of the over-all operations of the company he is in the most desirable position to handle the occurrence of unusual problems in a manner which will provide the best possible service to management.

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## ACCOUNTING FELLOWSHIPS

The accounting profession is faced with a problem of rapidly growing enrollments at the undergraduate level and a great shortage of qualified teachers. Part of the problem has been aggravated by an increased demand from industry, government and public accounting firms for accountants with advanced degrees. Another part is the problem of the time and money required to qualify for a doctoral degree.

To help alleviate this situation the American Accounting Association is offering fellowships ranging from $500 to $1500 per year to qualified individuals wishing to obtain their doctorates and become teachers of accountancy. Applicants must have a master's degree or equivalent in accountancy, business administration or other relevant areas. Full information on the fellowship program can be found in the October issue of *The Accounting Review.*

# AUDITING CASE STUDIES

*The following case studies are taken from a series prepared by the Internal Auditing Committee of American Gas Association and Edison Electric Institute.*

*These cases were selected for presentation because the subject matter deals with certain basic internal auditing responsibilities. The first three are related to the protective aspects of internal auditing and the importance of maintaining an effective control of cash transactions while the fourth is illustrative of the internal auditor's opportunity for constructive service to management in the routine performance of his duties.*

*Although the cases pertain to specific experiences in utility companies, the circumstances and corrective measures taken could apply to almost any type of business where similar activities exist.*

Subject: COLLECTION DEFALCATION

*Procedure*

This Company has a service district which includes numerous rural areas. In these areas it has centrally located reporting offices, and in the towns surrounding these offices agent collectors are employed.

Collection receipts are recorded daily by the collector on his collection report. These daily collections with receipted bill stubs and collection reports are, in most cases, picked up by a serviceman. He turns them in to an office cashier, who verifies the correctness of the reports and includes the amounts in the cash report of that day to the General Office.

*Case in Brief*

Some time ago, the cashier in one of the reporting offices, while preparing second notices for mailing, noticed that the arrears in one area were extremely high. The collector was called to check some of these accounts, and it was learned that several had been paid. The manager was informed of these findings and called on the agent collector, who had on file a collection report, signed by the serviceman, for which there was no copy in the reporting office.

Upon being questioned, the serviceman readily admitted that he had not turned in the money or report, and had lost the cash from the collection while gambling. He further stated that he held the checks, combined them with the checks and some cash from the next collection picked up, and turned it in. He held out cash in the amount of the checks from the original report.

*Corrective Measures Adopted*

As result of this defalcation, prenumbered collection reports are issued to agent collectors. They are distributed under the direct supervision of the internal auditors. The collection report has columns for amount collected as well as one for cash and checks. The totals for the cash and check columns must equal amount collected column.

Present procedure now requires the agent collector to make up a daily collection report in triplicate. When an employee picks up the collection report he receipts the triplicate copy, which is retained by the agent collector.

The employee delivers the original and duplicate with receipted bill stubs and funds to the reporting office. In the office, a cashier verifies the correctness of the report and initials the second copy and returns it to the employee. The original is placed in numerical order in a file which is maintained for each collector.

The person who is assigned the responsibility for filing the collection reports notifies the manager of any missing numbers.

In this way, maximum control of transmittal collections from agent collectors has been established.

Subject: A CASE OF ACCOUNT MANIPULATION

In the course of investigating a defalcation, an internal auditor discovered that the cashier, whose duties included the posting of the appliance accounts receivable ledger, had withheld payments on accounts. Although cash receipts were not turned in, credits were nevertheless posted to the customer accounts. To maintain proper balance with the control account, a new account was opened in the name of a relative. In order to keep the new account from appearing on delinquent lists, a new ledger sheet was made from time to time showing a new date. The invoice number used as authority for the entry was one selected at random and was for some entirely unrelated transaction. This practice could have continued indefinitely without detection unless that particular account chanced to be one of those selected for confirmation at the time of periodic internal or independent audits.

This case illustrates the risk of allowing an employee who receives customer payments to have access to the accounts receivable ledger records. Good internal control dictates that the duties of cashiers and accounts receivable bookkeepers should be segregated.

Subject: MISDIRECTED BANK CORRESPONDENCE

The Internal Audit Department had sometimes reviewed bank reconciliations prepared by others and those maintaining cash disbursement records. As part of the regular audit procedure, the audit department took complete charge of a recent bank reconciliation for one month. In the course of this work it was discovered that bank statements together with cancelled checks were sent to a variety of offices within the company. Correspondence with banks was found to be carried on at times without the knowledge of proper company officials.

As an improvement in internal control, all banks were requested to direct their communications to a designated company official, and the informal method of communication with banks was discontinued.

Subject: THE INTERNAL AUDITOR AND CUSTOMER RELATIONS

It is customary for internal auditors of this company to follow up, as requested, any exceptions noted on returns of confirmation requests on customer accounts mailed out by the independent auditors.

On one such occasion, while sorting out exceptions from the returned confirmation letters the internal auditors noted that a number of returns, although not claiming that a discrepancy existed, contained comments indicating customer attitudes and opinions concerning certain phases of the company's service. Usually the independent auditors take no special notice of such comments when no actual exception in the customer's account is indicated.

The nature of some of these comments revealed customer attitudes and opinions which the customer apparently felt strongly enough to cause him to make comments to individuals outside the company, whose influence the customers obviously hoped might work out for their benefit.

A number of the returns were from commercial customers served in towns where the customers were well known and were members of local service organizations at whose meetings problems of common interest often come up for active discussion. Adverse comments from such customers often influence opinions of other individuals in these organizations to the detriment of a company.

While this company does enjoy generally satisfactory customer relations, this situation presents an opportunity through proper follow-up to prevent seeds of dissatisfaction from taking root and in general to maintain and improve good customer relations.

The Internal Auditing Department asked permission of the independent auditors to use those customer returns which showed comments. After such comments had been gone over, letters were sent to district managers in the areas from which the returns were received. These letters quoted the customer comments verbatim, and it was suggested that managers deal with the individual problems of such customers with discretion and according to the specific situation.

Local manager reaction to the letters has been very good. Although some comments undoubtedly came from "chronics," it was reported that in practically all instances the customer expressed satisfaction at having his specific problem discussed and the situation explained. In general, the interviews resulted in more friendly relations with customers.

This method of "comment follow-up" is, of course, also employed on a larger scale in handling comments noted by customers on confirmations sent out by the internal auditors in the more frequent audits of field offices.

# READINGS OF INTEREST TO INTERNAL AUDITORS

**Subject:** **AN APPROACH TO FORMULATION OF PROFESSIONAL STANDARDS FOR INTERNAL AUDITORS**

**By:** **William L. Campfield, U. S. Army Audit Agency**
Published in The Accounting Review, July 1960
(Curtis Reed Plaza, Menasha, Wis.)

One aspect of professionalism is adherence to established standards of conduct. Internal auditing has at present no such clearly defined code. It operates under standards for public accountants, the Statement of Responsibilities of the Internal Auditor, various standards set forth in textbooks and other published matter and local "house rules."

The author believes that "there is an urgent need for organized internal auditors to take definitive steps in formulating and adopting a code of uniform standards." In this article he presents a suggested approach in terms of personal or general standards, standards of field work and standards for reporting.

**Subject:** **THE ADMINISTRATIVE FALLACY**

**By:** **David McCord Wright, McGill University**
Published in Harvard Business Review, July-August 1960
(Soldiers Field, Boston 63, Mass.)

The "administrative fallacy . . . is the assumption, constantly popping up in widely separate fields, that when affairs are working without apparent friction and through proper channels, they are working well! It is the tendency, often unconscious, to equate the 'good' with the precise, with the objective, with the smoothly flowing."

Many regard a smoothly running organization with fine human relations as an ideal. Yet an organization that can be so organized must of necessity have a rigid framework. And rigidity does not allow for sudden changes necessary to meet competitors' challenges and shifts in direction of demand and production requirements.

The author discusses the "administrative fallacy" in terms of human relations, management techniques and economic organization. "The administrative fallacy runs throughout modern American thought, creating a danger, not of revolution, but of anesthesia."

**Subject:** **WHEN THE COMPUTER TAKES OVER THE OFFICE**

**By:** **Ida Russakoff Hoos**
Published in Harvard Business Review, July-August 1960
(Soldiers Field, Boston 63, Mass.)

A great deal has been written about present and potential uses of electronic computers in terms of the work they can do, savings made possible, and techniques required for their effective operation. This

article, based on a two-year study of 19 organizations in the San Francisco bay area, discusses the effects on the office force when computers take over.

The total number of jobs does decrease, an estimate being that for every 5 jobs eliminated by automation only 1 is created. Programmers are the elite force; "the opportunities are few and the qualifications highly variable"; yet although they are rated executives, they receive unimpressive salaries. Office jobs under automation seem to be generally rated as much duller than before, including some previously rated above the clerical level.

The author also discusses the gradual recentralization brought on by use of the computers and the organizational effects of EDP in terms of job losses, wages, monotony, amount of opportunity for advancement, and problems of interoffice relationships and personnel work.

The problems discussed are short-run effects of automation on office workers. But particularly as uses for EDP increase careful study and planning are needed to avoid the type of problems analyzed in this article.

**Subject:** THE URGENT NEED FOR ACCOUNTING REFORMS

**By:** **Albert J. Bows, Arthur Andersen & Co.**
Published in N. A. A. Bulletin, September 1960
(505 Park Avenue, New York 22, N. Y.)

The definition of "generally accepted accounting principles" is coming under increasing attack. What is the definition? Are there accounting principles? Is there any true standard in reporting? In this article the author presents comparisons of two companies making the same product, with the same number of officers and employees and identical sales and costs. Accounting for these two companies, however, is done perfectly legally but differently, with the net result that one company shows a profit of $300,000 and a market value of $4,500,000; the other, $830,000 and $12,420,000.

Should accounting rules be so flexible as to permit such great differences? The author feels that the accounting profession must, after thorough discussion of all issues, develop uniform accounting rules. The American Institute of CPAs has set up an Accounting Principles Board to study the entire question. Both public and private accountants can and should present their views to the board.

**Subject:** WHAT MANAGEMENT EXPECTS OF THE INTERNAL AUDITOR

**By:** **R. W. Revans, University of Manchester (England)**
Published in The Accountant, July 23, 1960
(4 Draper Gardens, Throgmorton Ave., London, E.C. 2, England)

Rapid industrial change has been effected through the impact of applied science. New industries have been created, new methods of running old ones evolved. Management itself must be educated to use of scientific methods, not merely to acceptance of science as providing techniques.

"A major problem among managers today is to develop improved methods of control, so that the effectiveness of their policies and the hindrances to their fulfilment can be known as clearly and as quickly as possible." Management needs help from someone who can go into all phases of operations and render impartial reports. The internal auditor is in this position.

Professor Revans details changes taking place in British industry and how the internal auditor can expand his usefulness to management.

**Subject:** THE AUDITORS HAVE ARRIVED
**By:** T. A. Wise
Published in Fortune, November 1960
(540 North Michigan Ave., Chicago, Illinois)

This is the first of two articles on the development and present status of the public accounting profession. This first article describes how public accounting has developed from practically nothing—with 243 licensed CPAs in the United States in 1900—to its present membership (17,000) and importance in the business world. Particular attention is devoted to the eight largest firms and to the growth in their business and in the scope of their work.

Recognition is given to one relationship of internal auditing and public accounting in this paragraph:

"Another large influence on the bids that auditors submit, and on their costs in handling an account, is the extent of the client's own internal controls. A sizable number of large corporations have recently been building up their internal audit staffs, in order to maintain consistent surveillance and control over their systems and procedures, to guard against fraud, etc. This internal auditing cuts down the independent auditor's case load considerably, and huge companies like General Motors and A. T. & T., which have such internal systems, are able to hold down the fees they pay their independent accountants."

The second article will treat with the present ambiguity as to what are "generally accepted accounting principles" and with uncertainties as to ethical conduct where there may be a possible conflict of interest.

**Subject:** ELECTRONIC BUSINESS MACHINES
**Editor:** J. H. Leveson, Dundee Technical College

This is an introductory study of application of electronic computers to industrial and commercial situations. Both technical aspects and broader considerations of feasibility and proper applications are treated. Three major sections cover Programming for Business Purposes, Business Management and Electronic Data Processing and Computer Equipment and Applications.

Of particular interest to internal auditors is a chapter on Problems of Auditing and Control. Here is pointed out the need for a basic knowledge of the computer for effective auditing of computer-maintained records. "New control and audit procedures will be re-

quired—new sampling and testing procedures—methods must put greater reliance on equipment that follows different paths than (other) processing methods would use."

Philosophical Library
15 East 40th St.
New York 16, N. Y.
272 pages. Price $15

## BACKGROUND BOOKS

**Subject: THE OPERATORS**

**By: Frank Gibney, Life Magazine**

White collar crime has been defined as "a crime committed by a person of respectability and high social status in the course of his occupation." Fraud is one phase of crime engaged in by the Operators, but only one. "The Operator thrives on moral, not to say legal sleight-of-hand." His operations range from padding expense accounts, accepting or giving bribes and cheating on taxes to juggling large corporations.

Our "Genial Society" has sanctioned much through its laxity; many respectable people feel that anything goes to make a dollar. Public indifference is such that District Attorney Frank Hogan of New York County said, "We make a sort of game of it, between law-enforcement officials and criminals, and sit complacently by, quite ready to applaud a brilliant stroke on either side."

This interesting and disturbing book is a study of many of the activities of the Operators, with actual cases cited, and concludes with a discussion of the public morality. The author's thesis is that by practicing selective observance of laws, condoning the immoral (whether or not illegal) practices now prevalent, and attempting a corrective merely through more laws—not through change of the moral climate—we are undermining our very society.

Harper and Brothers
49 East 33rd Street
New York 16, New York
284 pages. Price $3.95

## WORTH NOTING

PRINCIPLES OF ACCOUNTING Advanced
By H. A. Finney and Herbert Miller, Fifth Edition. Prentice Hall, Inc., Englewood Cliffs, N. J. 834 pages. Price $11.35.

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by W. A. WALKER and W. R. DAVIES
McGraw-Hill Company—330 W. 42nd Street, New York 18, N. Y.

**BASIC INTERNAL AUDITING**
by JOHN B. THURSTON
International Textbook Company—Scranton, Pa.

**INTERNAL CONTROL STANDARDS AND RELATED AUDITING PROCEDURES**
by WALTER H. KAMP and JAMES A. CASHIN
Brock and Wallston—39 Atlantic Street, Stamford, Conn.

**INTERNAL AUDITING**
by VICTOR Z. BRINK and JAMES A. CASHIN
Ronald Press—15 E. 26th Street, New York 10, N. Y.

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